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Water Resources Data for Virginia, Water Year 1977

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Water Resources Data for Virginia

Water Year 1977

U.S. DEPARTMENT OF THE INTERIOR
MARCH 3, 1849

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT VA-77-1

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U.S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

Prepared in cooperation with the State of Virginia
and with other agencies

403

CALENDAR FOR WATER YEAR 1977

1976

OCTOBER

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1977

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Water resources data for the 1977 water year for Virginia consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of wells and springs. This report contains discharge records for 198 gaging stations; stage only for 1 gaging station; stage and contents for 9 lakes and reservoirs; water quality for 32 gaging stations; and water levels for 49 observation wells. Also included are data for 95 crest-stage partial-record stations. Additional water data were collected at various sites, not part of the systematic data collection program, and are published as miscellaneous measurements. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Virginia.

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for
Virginia

Water Year 1977

U.S. DEPARTMENT OF THE INTERIOR
MARCH 3, 1849

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT VA-77-1

Prepared in cooperation with the State of Virginia
and with other agencies

Ia

UNITED STATES DEPARTMENT OF THE INTERIOR

CECIL D. ANDRUS, Secretary

GEOLOGICAL SURVEY

H. William Menard, Director

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Charlottesville, Virginia 22903

1978

PREFACE

This report was prepared by personnel of the Virginia district of the Water Resources Division of the U.S. Geological Survey under the supervision of W. E. Forrest, District Chief, and J. E. Biesecker, Regional Hydrologist, Northeastern Region. It was done in cooperation with the State of Virginia and with other agencies.

This report is one of a series issued by State. General direction for the series is by J. S. Cragwall, Jr., Chief Hydrologist, U.S. Geological Survey, and G. W. Whetstone, Assistant Chief Hydrologist for Scientific Publications and Data Management.

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[Letter after station name designates type of data: (d) discharge, (c) chemical, (b) biological, (m) microbiological, (p) pesticides, (t) water temperature, (s) sediment, (e) elevation, gage heights, or contents]

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WATER RESOURCES DATA FOR VIRGINIA, 1977

INTRODUCTION

Water resources data for the 1977 water year for Virginia consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of ground water. This report contains discharge records for 198 gaging stations; stage only records for 1 gaging station; stage and contents for 9 lakes and reservoirs; water quality for 32 gaging stations; and water levels for 49 observation wells. Also included are data for 95 crest-stage partial-record stations. Additional water data were collected at various sites, not involved in the systematic data collection program, and are published as miscellaneous measurements. These data represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Virginia.

Records of discharge or stage of streams, and contents or stage of lakes and reservoirs were first published in a series of U.S. Geological Survey water-supply papers entitled "Surface Water Supply of the United States." Through September 30, 1960, these water-supply papers were in an annual series and then in a 5-year series for 1961-65 and 1966-70. Records of chemical quality, water temperatures, and suspended sediment were published from 1941 to 1970 in an annual series of water-supply papers entitled "Quality of Surface Waters of the United States." Records of ground-water levels were published from 1935 to 1974 in a series of water-supply papers entitled "Ground-Water Levels in the United States." Water-supply papers may be consulted in the libraries of the principal cities in the United States or may be purchased from Branch of Distribution, U.S. Geological Survey, 1200 South Eads Street, Arlington, VA 22202.

For water years 1961 through 1974, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records for water years 1964 through 1974 were similarly released either in separate reports or in conjunction with streamflow records. Beginning with the 1975 water year, water data for streamflow, water quality, and ground water are published as an official Survey report on a State-boundary basis. These official Survey reports carry an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this report is identified as "U.S. Geological Survey Water-Data Report VA-77-1." Water-data reports are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

COOPERATION

The U.S. Geological Survey and organizations of the State of Virginia have had cooperative agreements for the systematic collection of streamflow records since 1925, for ground-water levels from 1931 to 1957 and since 1967, and for water-quality records from 1944 to 1957 and since 1967. Organizations that assisted in collecting data through cooperative agreement with the Survey are:

Virginia State Water Control Board, Robert V. Davis, executive secretary.
Virginia Department of Highways and Transportation, John E. Harwood, commissioner.
City of Alexandria, Douglas Harman, city manager.
City of Newport News, Walter S. Grant, Jr., director, Department of Public Utilities.
City of Roanoke, Byron E. Haner, city manager.
City of Staunton, R. Gene McCombs, city manager.
Southeastern Public Service Authority, Robert F. Foeller, administrative officer.

Assistance in the form of funds or services was given by the Corps of Engineers, U.S. Army, in collecting records for 65 gaging stations and 2 water-quality stations published in this report.

Under a cooperative agreement covering the Tennessee River basin, the Tennessee Valley Authority furnished financial assistance for the operation of 8 gaging stations, the records for which are published herein.

Assistance was also furnished by the Water Quality Office, Environmental Protection Agency.

The Appalachian Power Company and the City of Radford aided in collecting records.

Organizations that supplied data are acknowledged in station descriptions.

HYDROLOGIC CONDITIONS

Streamflow was above average throughout the State at the beginning of the water year, falling back to average during November, and remaining average or above until February. Flows in the northern and central parts of the State were generally below average for the remainder of the year. Flows in the southwestern part of the State were average or above from February through September. Low flows in the northern and central parts of the State reflect the lack of precipitation which caused drought conditions to exist in these areas during the summer crop season. Flows on the Rapidan River near Culpeper, which are representative of flows in this area, averaged

55 cfs (cubic feet per second) for the month of September. This was the sixth lowest flow of record for September. Monthly and annual mean discharges are compared with medians at four representative gaging stations (see figure 2).

Peak flows, in general, occurred on streams in the northern and eastern parts of the State during October, and their magnitude was about that of a flood having a recurrence interval of 50 years.

Ground-water levels were above average from October through December in northern Virginia, the Piedmont Region, and extreme western part of the Coastal Plain. From January through September, water levels were below normal reflecting below-normal precipitation during this period. New monthly lows were recorded for August and September 1977 at the Bacon-Summerville well in Fairfax County. Ground-water levels were at or above average in southwestern Virginia. However, near the heavily pumped Franklin area in southeastern Virginia, ground-water levels declined about 5.7 feet to about 184.3 feet below land surface.

RECORDS COLLECTED BY THE STATE OF VIRGINIA

In addition to data collected by the U.S. Geological Survey, there are included herein records for 92 gaging stations and 21 index wells operated by the Virginia State Water Control Board. These records are published as furnished and are acknowledged in the "COOPERATION" paragraph of each individual station. The State Water Control Board is under the direction of Robert V. Davis, executive secretary. Published material for the gaging-station records and the ground-water wells is supplied, respectively, through the Bureau of Surveillance and Field Studies, Raymond E. Bowles, director, and the Bureau of Water Control Management, Dale F. Jones, director.

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. See also the table for converting English units to International System of Units (SI) on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Adenosine triphosphate (ATP) is the primary energy donor in cellular life process. Its central role in living cells makes it an excellent indicator of the presence of living material in water. A measure of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter of the original water sample.

Algae are mostly aquatic single-celled, colonial, or multi-celled plants, containing chlorophyll and lacking roots, stems, and leaves.

Algal growth potential (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present at stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer, tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as the organisms which produce colonies within 24 hours when incubated at 35°C ± 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5°C ± 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found also in intestines of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°± 1.0°C on M-enterrococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bed material is the unconsolidated material of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by micro-organisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square meter (g/m^2).

Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material: See Bed material.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

Cfs-day is the volume of water represented by flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons or 2,447 cubic meters.

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common pigments in plants.

Color unit is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of channel.

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Cubic foot per second (FT^3/S, ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment) that passes a given point within a given period of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge is the discharge at a particular instant of time.

Dissolved refers to the amount of substance present in true chemical solution. In practice, however, the term includes all forms of substance that will pass through a 0.45-micrometer membrane filter, and thus may include some very small (colloidal) suspended particles. Analyses are performed on filtered samples.

Diversity index is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = -\sum_{i=1}^{s} \frac{n_i}{n} \log_2 \frac{n_i}{n}$$

Where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at a specified location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontribution areas, within the area unless otherwise noted.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ($CaCO_3$).

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an 8-digit number.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Methylene blue active substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic detergent compounds.

Micrograms per gram (µg/g) is a unit expressing the concentration of a chemical element as the mass (micrograms) of the element sorbed per unit mass (gram) of sediment.

Micrograms per liter (UG/L, µg/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represent the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L and is based on the mass of sediment per liter of water-sediment mixture.

Organism is any living entity, such as an insect, phytoplankter, or zooplankter.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meters (m^2), acres, or hectares. Periphyton benthic organisms and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliters (mL) or liters (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle size is the diameter, in millimeters (mm), of suspended sediment or bed material determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology.

The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay..........	0.00024 - 0.004	Sedimentation.
Silt..........	.004 - .062	Sedimentation.
Sand..........	.062 - 2.0	Sedimentation or sieve.
Gravel........	2.0 - 64.0	Sieve.

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic matter is removed, and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native-water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass, or volume.

Pesticides are chemical compounds used to control undesirable plants and animals. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides. Insecticides and herbicides, which control insects and plants respectively, are the two categories reported.

Picocurie (PC, pCi) is one trillionth (1×10^{-12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells/mL of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algal mats or floating "moss" in lakes. Their concentrations are expressed as number of cells/mL of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Milligrams of carbon per area or volume per unit time [mg C/(m^2.time) for periphyton and macrophytes and mg C/(m^3.time)] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [mg O$_2$/(m^2.time) for periphyton and macrophytes and mg O$_2$/(m^3.time)] for phytoplankton are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

Runoff in inches (IN, in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight or volume, that passes a section in a given time. It is computed by multiplying discharge times mg/L times 0.0027.

Suspended-sediment load is quantity of suspended sediment passing a section in a specified period.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry weight or volume, that passes a section during a given time.

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in micromhos per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water per unit of time, flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lived.

Natural substrates refers to any naturally occurring emersed or submersed solid surface, such as a rock or tree, upon which an organism lived.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multi-plate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection.

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

Surficial bed material is that part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of the total concentration in a water-sediment mixture. The water-sediment mixture is associated with (or sorbed on) that material retained on a 0.45-micrometer filter.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata is the following:

Kingdom.................Animal
Phylum..............Arthropoda
Class...................Insecta
Order............Ephemeroptera
Family.............Ephemeridae
Genus..................Hexageria
Species......Hexagenia limbata

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by 0.00136.

Tons per day is the quantity of substance in solution or suspension that passes a stream section during a 24-hour day.

Total load (tons) is the total quantity of any individual constituent, as measured by dry mass or volume, that is dissolved in a specific amount of water (discharge) during a given time. It is computed by multiplying the total discharge, times the mg/L of the constituent, times the factor 0.0027, times the number of days.

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WDR is used as an abbreviation for "Water Data Report" in the REVISED RECORDS paragraph to refer to State annual basic-data reports.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

DOWNSTREAM ORDER AND STATION NUMBER

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary that enters between two main-stream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary on which a station is situated with respect to the stream to which it is immediately tributary is indicated by an indentation in a list of stations in the front of the report. Each indentation represents one rank. This downstream order and system of indentation show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station such as 03041000, which appears just to the left of the station name, includes the 2-digit part number "03" plus the 6-digit downstream order number "041000".

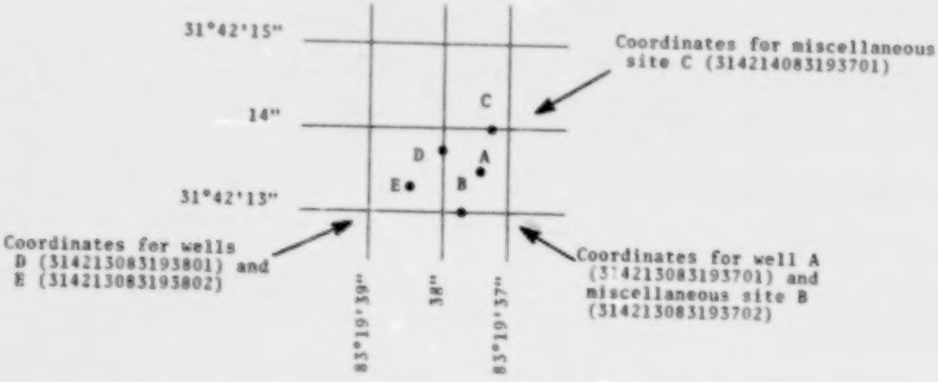
NUMBERING SYSTEM FOR WELLS AND MISCELLANEOUS SITES

The 8-digit downstream order station numbers are not assigned to wells and miscellaneous sites where only random water-quality samples or discharge measurements are taken.

The well and miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, the next 7 digits denote degrees, minutes, and seconds of longitude, and the last 2 digits (assigned sequentially) identify the wells or other sites within a 1-second grid. See figure 1 below.

A second well-numbering system used in Virginia utilizes 7 1/2-minute quadrangles within the State. The quadrangles are numbered from west to east, and lettered from south to north, omitting the letters "I" and "O." The designation for each quadrangle is determined by the method "Read Right, Up." Wells are numbered serially within each quadrangle. This local well number is shown immediately after the primary well number.

Well records furnished by the State of Virginia also include the well number that is based on an indexing system used by the State Water Control Board.



Coordinates for miscellaneous site C (314214083193701)

Coordinates for wells D (314213083193801) and E (314213083193802)

Coordinates for well A (314213083193701) and miscellaneous site B (314213083193702)

Figure 1. System for numbering wells and miscellaneous sites (latitude and longitude)

SPECIAL NETWORKS AND PROGRAMS

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin.

National stream-quality accounting network (NASQAN) is a data collection network designed by the U.S. Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated into the network design. Areal configuration of the network is based on river-basin accounting units (identified by 8-digit hydrologic-unit numbers) designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are (1) to depict areal variability of streamflow and water-quality conditions nationwide on a year-by-year basis and (2) to detect and assess long-term changes in streamflow and stream quality.

Pesticide program is a network of regularly sampled water-quality stations where samples are collected to determine the concentration and distribution of pesticides in streams where potential contamination could result from the application of the commonly used insecticides and herbicides. Operation of the network is a Federal interagency activity.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Tritium network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

Collection and computation of data

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and contents of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from either direct readings on a nonrecording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at selected time intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey. These methods are described in standard textbooks, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6.

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), step-backwater techniques, velocity-area studies, and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables; then the monthly and yearly mean discharge are computed from the daily figures. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is computed by the shifting-control method, in which correction factors based on individual discharge measurements and notes by hydrologists and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

At some stream-gaging stations the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

At some northern stream-gaging stations the stage-discharge relation is affected by ice in the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of gage-height record and occasional winter discharge measurements. Consideration is given to the available information on temperature and precipitation, notes by gage observers and hydrologists, and comparable records of discharge for other stations in the same or nearby basins.

For a lake or reservoir station, capacity tables giving the contents for any stage are prepared from stage-area relation curves defined by surveys. The application of the stage to the capacity table gives the contents, from which the daily, monthly, or yearly change in contents is computed.

If the stage-capacity curve is subject to changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys the computed contents may be increasingly in error due to the gradual accumulation of sediment.

For some gaging stations, there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records for other stations in the same or nearby basins. Likewise daily contents may be estimated on the basis of operator's log, prior and subsequent records, inflow-outflow studies, and other information.

The data in this report generally comprise a description of the station and tabulations of daily and monthly figures. For gaging stations on streams or canals a table showing the daily discharge and monthly and yearly discharge is given. For gaging stations on lakes and reservoirs a monthly summary table of stage and contents or a table showing the daily contents is given. Tables of daily mean gage heights are included for some streamflow stations and for some reservoir stations. Records are published for the water year, which begins on October 1 and ends on September 30.

The description of the gaging station gives the location, drainage area, period of record, notations of revisions of previously published records, type and history of gages, general remarks, average discharge, and extremes of discharge or contents. The location of the gaging station and the drainage area are obtained from most accurate maps available. River mileage, given under "LOCATION" for some stations, is that determined and used by the Corps of Engineers or other agencies. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD."

Previously published streamflow records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1965 stands for the water year October 1, 1964, to September 30, 1965. If no daily, monthly, or annual figures of discharge are affected by the revisions, the fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

The type of gage currently in use, the datum of the present gage above mean sea level, and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." In references to datum of gage, the phrase "mean sea level" denotes "National Geodetic Vertical Datum of 1929 (NGVD)" as used by the Topographic Division of the Geological Survey unless otherwise qualified.

Information pertaining to the accuracy of the discharge records and to conditions which affect the natural flow of the gaging station is given under "REMARKS." For reservoir stations information on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir is given under "REMARKS."

Those records which have been computed and furnished by the Virginia State Water Control Board are identified under "COOPERATION."

The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE"; it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. In addition, the median of yearly mean discharges is given for stream-gaging stations having 10 or more complete years of record if the median differs from the average by more than 10 percent. Under "EXTREMES" are given first, the extremes for the period of record, second, information available outside the period of record, and last, those for the current year. Unless otherwise qualified, the maximum discharge (or contents) is the instantaneous maximum corresponding to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge (or contents), it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations peak discharges are listed with EXTREMES FOR THE CURRENT YEAR; if they are, all independent peaks, including the maximum for the year, above the selected base with the time of occurrence and corresponding gage heights are published in tabular format. The base discharge, which is given in the table heading, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in a separate paragraph following the table of peaks.

Skeleton rating tables are published, immediately following EXTREMES FOR THE CURRENT YEAR, for stream-gaging stations where they serve a useful purpose and the dates of applicability can be easily identified.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also may be expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN"), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

Footnotes to the table of daily discharges are introduced by the word "NOTE." Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-discharge relation, or of any other unusual condition at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published for all reservoirs for which records are published on a daily basis but is not published for reservoirs for which only monthly data are given.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. Occasionally, a series of discharge measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are also given in special tables following the tables of partial-record stations.

Accuracy of field data and computed results

The accuracy of streamflow data depends primarily on (1) the stability of the stage-discharge relation, or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretations of records.

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent; "good", within 10 percent; and "fair" within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 ft^3/s; to tenths between 1.0 and 10 ft^3/s; to whole numbers between 10 and 1,000 ft^3/s; and to 3 significant figures above 1,000 ft^3/s. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff in inches are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Other data available

Information of a more detailed nature than that published for most of the gaging stations, such as observations of water temperatures, discharge measurements, gage-height records, and rating tables is on file in the offices whose addresses are given on the back of the title page of this report. Also most gaging-station records are available in computer-usable form and many statistical analyses have been made.

Information on the availability of unpublished data or statistical analyses may be obtained from the offices whose addresses are given on the back of the title page of this report.

Records of discharge collected by agencies other than the Geological Survey

The National Water Data Exchange, Water Resources Division, U.S. Geological Survey, National Center, Reston, VA 22092, maintains an index of records of discharge collected by other agencies but not published by the Geological Survey. Information on records available at specific sites can be obtained upon request.

EXPLANATION OF WATER-QUALITY RECORDS

Collection and examination of data

Surface-water samples for analyses usually are collected at or near gaging stations. The quality-of-water records are given immediately following the discharge records at these stations.

The descriptive heading for water-quality records gives the period of record for all water-quality data, the period of daily record for parameters that are measured on a daily basis (specific conductance, pH, dissolved oxygen, water temperature, sediment discharge, etc.), extremes for the period of daily record, extremes for the current year, and general remarks.

For ground-water records, no descriptive statements are given; however, the well number, depth of well, date of sampling and/or other pertinent data are given in the table containing the chemical analyses of the ground water.

Water analysis

Most methods for collecting and analyzing water samples are described in the *U.S. Geological Survey Techniques of Water-Resources Investigations* listed on a following page.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the district office.

Water temperatures

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diel temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided day method (time-discharge weighted average). Therefore, for those days when the published sediment-discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided day method. For periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of the quantities of suspended sediment, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included.

EXPLANATION OF GROUND-WATER LEVEL RECORDS

Collection of the data

Only ground-water level data from a basic network of observation wells are published herein. This basic network contains observation wells so located that the most significant data are obtained from the fewest wells in the most important aquifers.

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude and (2) a local number that is provided for local needs. See figure 1.

Measurements are made in many types of wells under varying conditions of access and at different temperatures, hence, neither the method of measurement nor the equipment can be standardized. At each observation well, however, the equipment and techniques used are those that will insure that measurements at each well are consistent.

Water-level measurements in this report are given in feet with reference to either mean sea level (msl) or land-surface datum (lsd). Mean sea level is the datum plane on which the national network of precise levels is based; land-surface datum is a datum plane that is approximately at land surface at each well. If known, the altitude of the land-surface datum above mean sea level is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and at the end of each month (eom).

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error in determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given only to a tenth of a foot or a larger unit.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Thirty-four manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) is on surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises. The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 1200 South Eads Street, Arlington, VA 22202 (authorized agent of the Superintendent of Documents, Government Printing Office). Prices are effective January 1978 but are subject to change.

NOTE: When ordering any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations".

1-D1. *Water temperature-influential factors, field measurement, and data presentation*, by H. H. Stevens Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages. $1.60.

1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W.W.Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages. $0.85

2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages. $1.90.

2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages. $1.75.

3-A1. *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages. $1.00.

3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages. $0.35.

3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages. $0.40.

3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages. $1.00.

3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages. $0.35.

3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6, 1968, 13 pages. $1.00.

3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages. $1.40.

3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages. $1.25.

3-A11. *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages. $1.20.

3-A12. *Fluorometric procedures for dye tracing*, by J. F. Wilson Jr.: USGS--TWRI Book 3, Chapter A12. 1968. 31 pages. $0.35. Not currently available.

3-B1. *Aquifer-test design, observation, and data analysis*, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages. $0.70.

3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2 1976. 172 pages. $2.50.

3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages. $0.65.

3-C2. *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2, 1970. 59 pages. $2.50.

3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages. $2.10.

4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4 Chapter A1. 1968. 39 pages. $1.60.

4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages. $0.35.

4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972, 18 pages. $0.65.

4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages. $0.75.

4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages. $0.65.

4-D1. *Computation of rate and volume of stream depletion by wells*, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages. $1.10.

5-A1. *Methods for collection and analysis of water samples for dissolved minerals and gases*, by Eugene Brown, M. W. Skougstad, and M. J. Fishman: USGS--TWRI Book 5, Chapter A1. 1970. 160 pages. $2.40.

5-A2. *Determination of minor elments in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages. $0.80.

5-A3. *Methods for analysis of organic substances in water*, by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages. $0.90.

5-A4.* *Methods for collection and analysis of aquatic biological and microbiological samples*, edited by P.E. Greeson, T.A. Ehlke, G.A. Irwin, B.W. Lium, and K.V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages. $20.00.

5-A5.* *Methods for determination of radioactive substances in water and fluvial sediments*, by L.L. Thatcher, V.J. Janzer, and K.W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages. $16.00.

5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages. $2.10.

7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages. $2.30.

8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages. $0.70.

8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages. $1.10.

*These publications are available ONLY from Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. They are in looseleaf format and are subscription items. Additional supplements will be issued to subscribers at no extra cost. Checks should be made payable to Superintendent of Documents. Requester should emphasize to Superintendent of Documents that this is a subscription item.

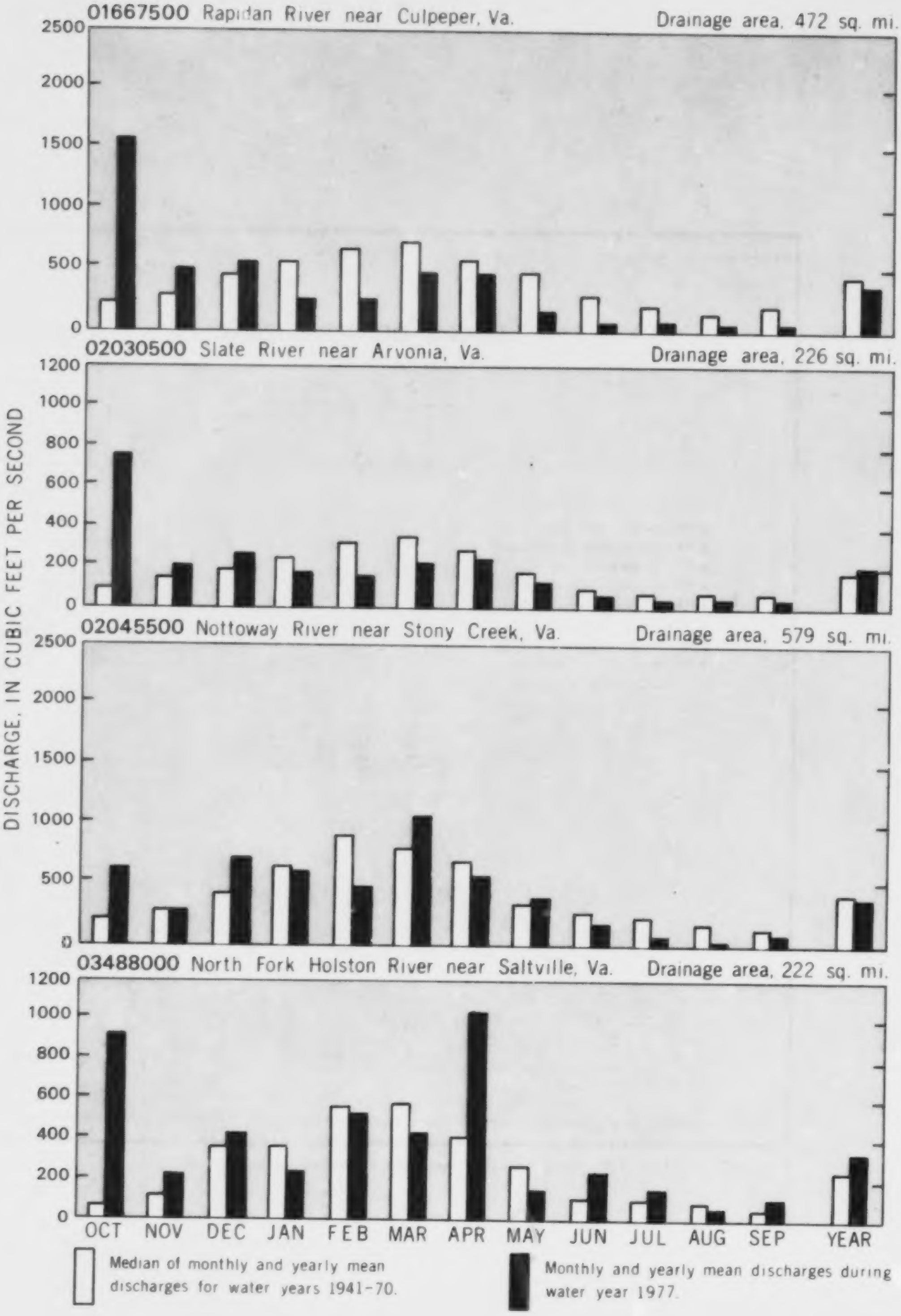


FIGURE 2. Discharge during 1977 water year compared with median discharge for period 1941-70 for four representative gaging stations

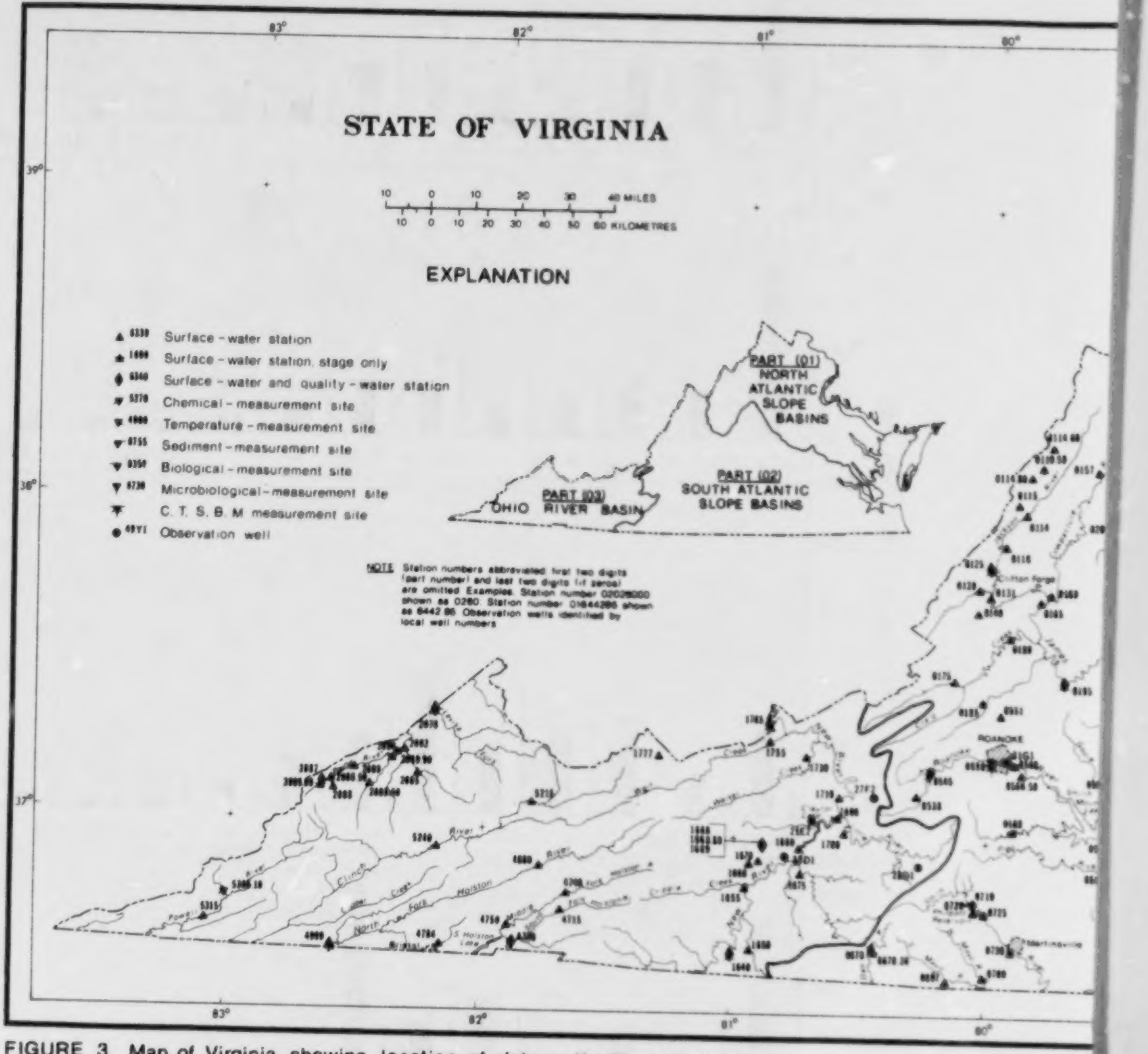
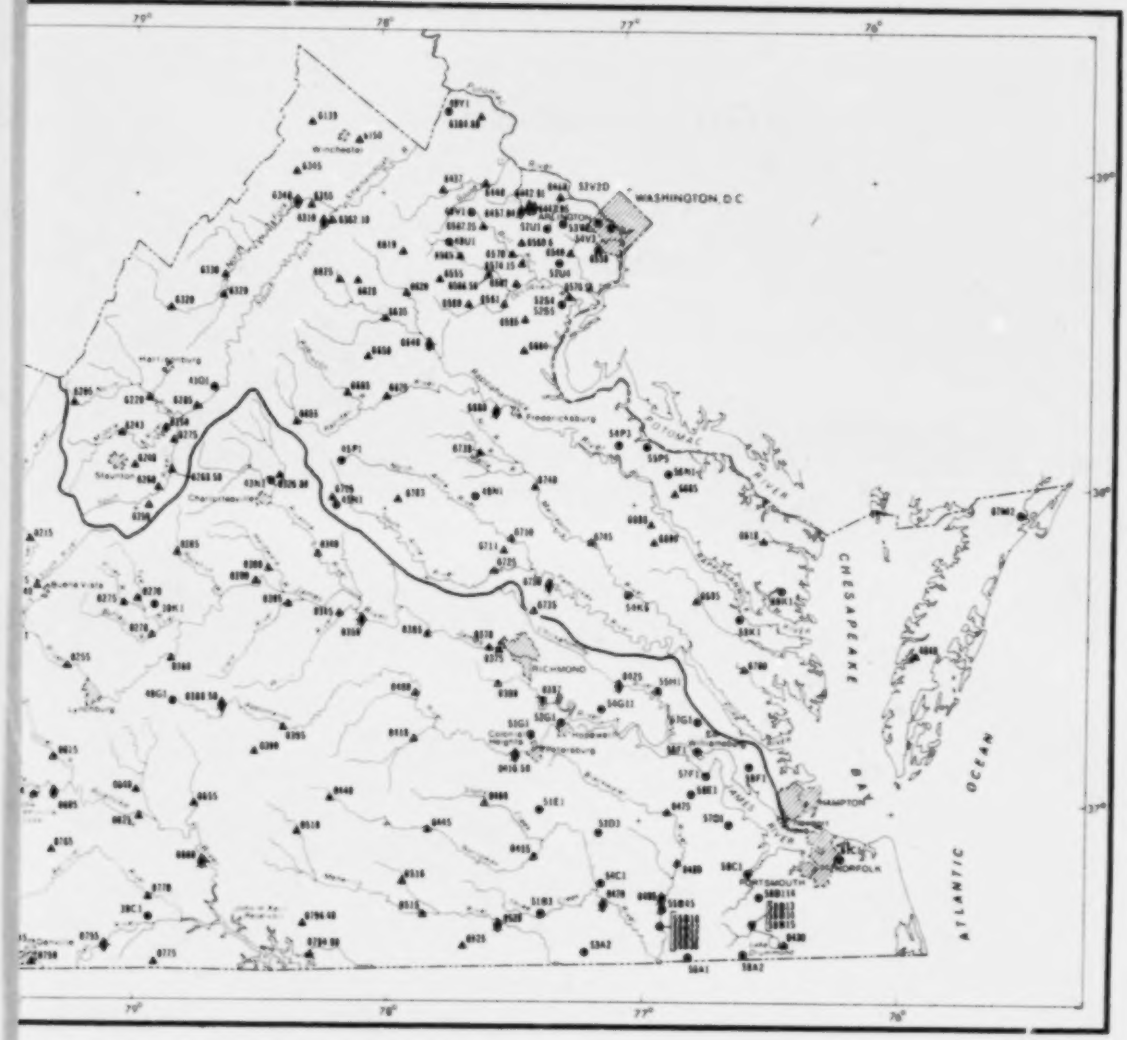

STATE OF VIRGINIA
10 0 10 20 30 40 MILES
10 0 10 20 30 40 50 60 KILOMETRES
EXPLANATION
▲ 0330 Surface - water station
1000 Surface - water station, stage only
◆ 0340 Surface - water and quality - water station
5270 Chemical - measurement site
4000 Temperature - measurement site
▼ 0755 Sediment - measurement site
▼ 0350 Biological - measurement site
▼ 0730 Microbiological - measurement site
C. T. S. B. M measurement site
● 49Y1 Observation well
NOTE Station numbers abbreviated: first two digits (part number) and last two digits (if zeros) are omitted. Examples: Station number 02026000 shown as 0260. Station number 01644285 shown as 6442.85. Observation wells identified by local well numbers.
PART (01) NORTH ATLANTIC SLOPE BASINS
PART (02) SOUTH ATLANTIC SLOPE BASINS
PART (03) OHIO RIVER BASIN
83°
82°
81°
80°
39°
38°
37°
ROANOKE
Clifton Forge
Martinsville
Clinch
Holston
North Fork
Powell
Bristol
S. Holston Lake
New
River

FIGURE 3. Map of Virginia showing location of data-collection stations.


79°
78°
77°
76°
39°
38°
37°
Winchester
WASHINGTON, D.C.
Harrisonburg
Staunton
Charlottesville
Fredericksburg
POTOMAC
RIVER
Buena Vista
Lynchburg
RICHMOND
Hopewell
Colonial Heights
Petersburg
JAMES
RIVER
HAMPTON
NORFOLK
PORTSMOUTH
Danville
CHESAPEAKE
BAY
ATLANTIC
OCEAN

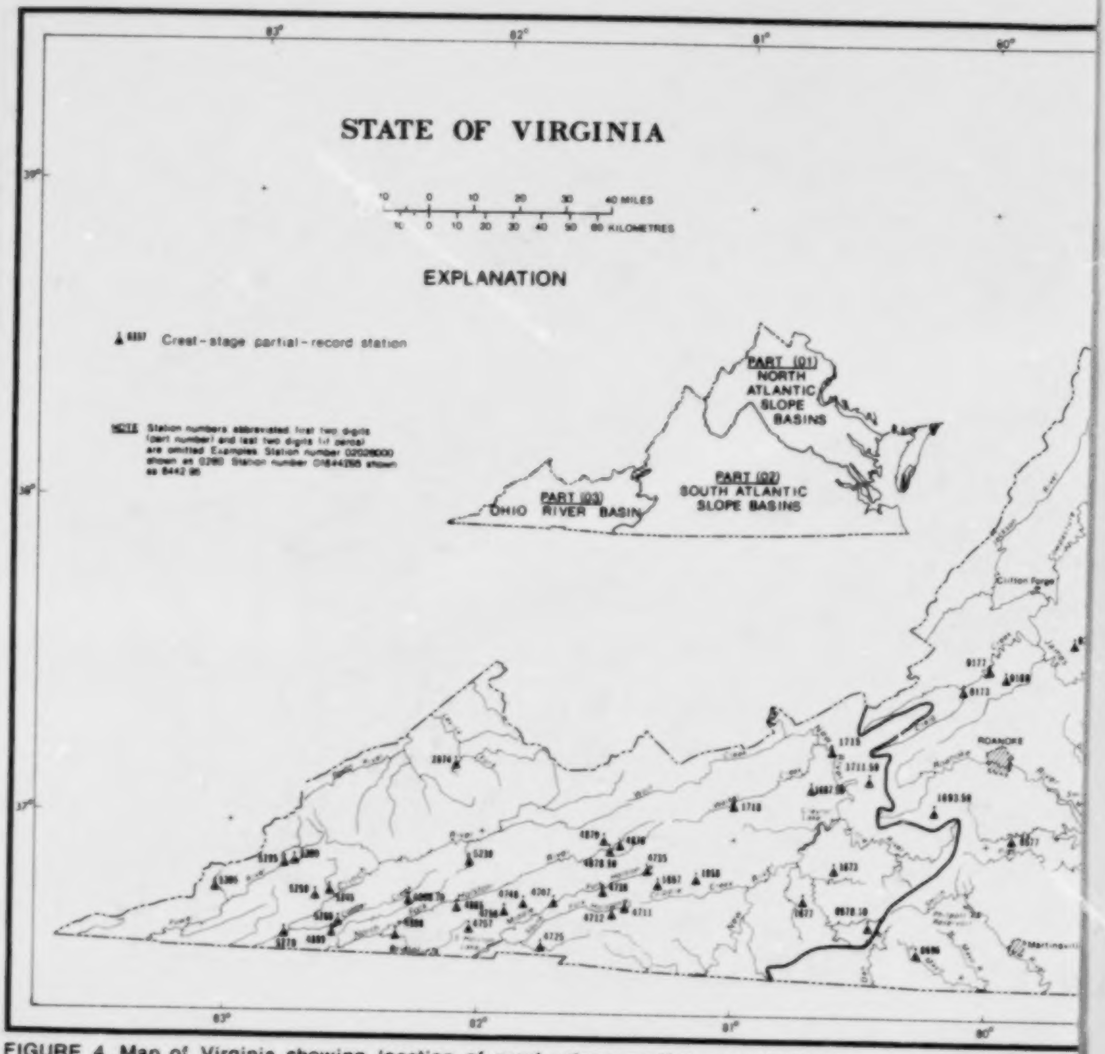
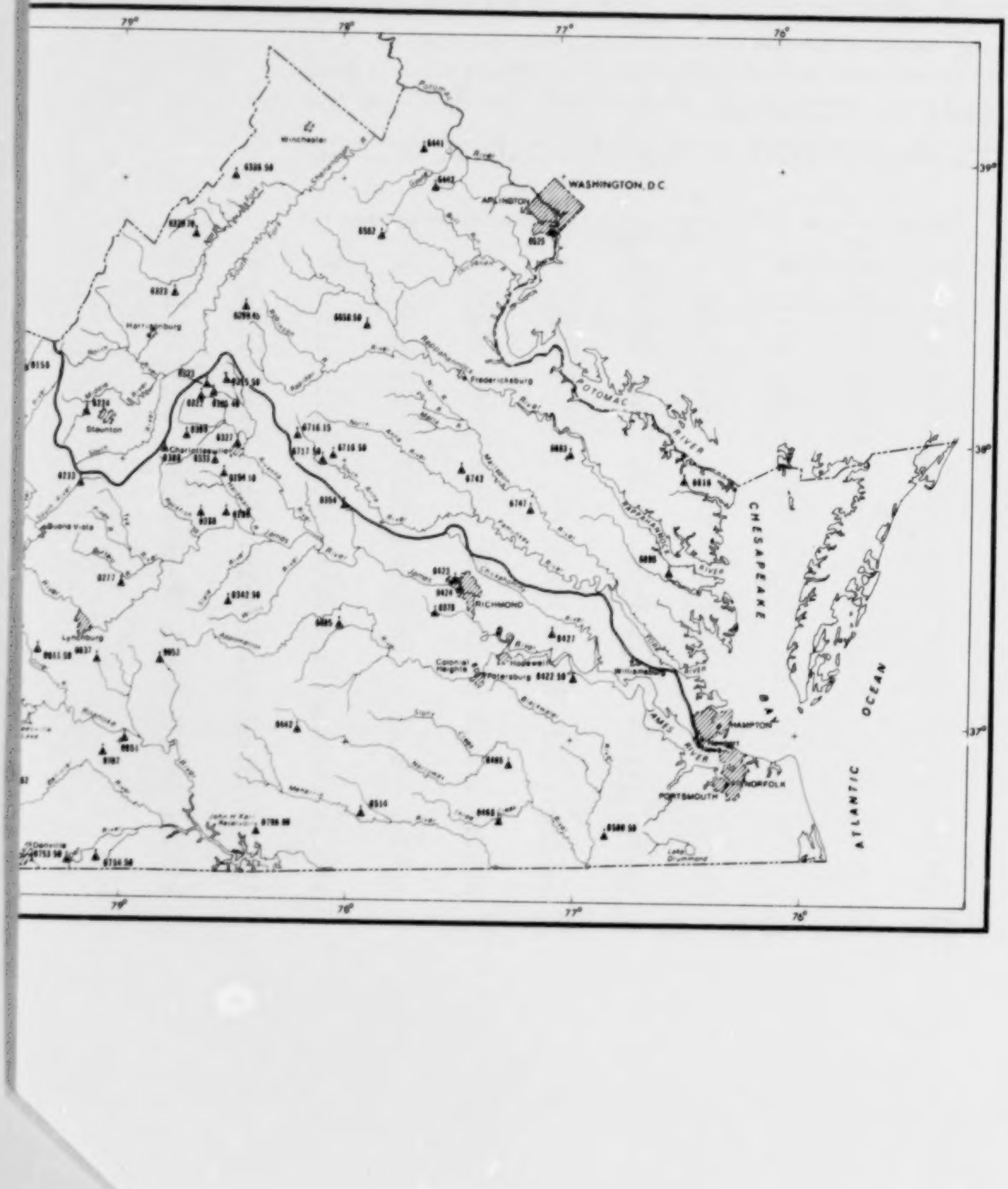

STATE OF VIRGINIA
10 0 10 20 30 40 MILES
10 0 10 20 30 40 50 60 KILOMETRES
EXPLANATION
Crest-stage partial-record station
NOTE Station numbers abbreviated first two digits (part number) and last two digits (if zeros) are omitted. Examples: Station number 02028000 shown as 0280. Station number 01644295 shown as 6442.95
PART (01) NORTH ATLANTIC SLOPE BASINS
PART (02) SOUTH ATLANTIC SLOPE BASINS
PART (03) OHIO RIVER BASIN
83°
82°
81°
80°
39°
38°
37°
Clifton Forge
ROANOKE
Martinsville
5230
1718
1711.50
1693.50
1673

FIGURE 4. Map of Virginia showing location of crest-stage partial-record stations.


79°
78°
77°
76°
39°
38°
37°
Winchester
Potomac
River
WASHINGTON, D.C
ARLINGTON
Harrisonburg
Staunton
Charlottesville
Fredericksburg
POTOMAC
RIVER
Rappahannock
RAPPAHANNOCK
RIVER
North Anna River
South Anna River
Mattaponi
Pamunkey River
James
River
JAMES
RIVER
YORK
RIVER
Buena Vista
Lynchburg
Appomattox
RICHMOND
Colonial Heights
Hopewell
Petersburg
Williamsburg
HAMPTON
NORFOLK
PORTSMOUTH
Nottoway
Meherrin
Roanoke
John H. Kerr Reservoir
Danville
Lake Drummond
CHESAPEAKE
BAY
ATLANTIC
OCEAN
0150
0233
0277
0342 50
0716 15
0716 50
0717 50
0623
0624
0427
0422 50

8

NORTH ATLANTIC SLOPE BASINS

NASSAWADOX CREEK BASIN

01484800 GUY CREEK NEAR NASSAWADOX, VA

LOCATION.--Lat 37°30'08", long 75°52'22", Northampton County, Hydrologic Unit 02080109, on left bank 25 ft (8 m) upstream from bridge on State Highway 606, 1.9 mi (3.1 km) northwest of Nassawadox, and 2.1 mi (3.4 km) upstream from mouth.

DRAINAGE AREA.--1.72 mi^2 (4.45 km^2).

PERIOD OF RECORD.--November 1963 to current year.

GAGE.--Water-stage recorder and wooden control. Datum of gage is 11.67 ft (3.557 m) above mean sea level.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--13 years (water years 1965-77), 1.13 ft^3/s (0.032 m^3/s), 8.92 in/yr (227 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 60 ft^3/s (1.70 m^3/s) July 10, 1970, gage height, 4.81 ft (1.466 m); no flow at times in 1964 and 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13 ft^3/s (0.37 m^3/s) Feb. 27, gage height, 2.74 ft (0.835 m), no peak above base of 20 ft^3/s (0.57 m^3/s); minimum, 0.02 ft^3/s (<0.001 m^3/s) Aug. 10, gage height, 1.52 ft (0.463 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.13	.15	.15	.46	.36	2.6	.91	.27	.17	.11	.17	.06
2	.33	.13	.13	.46	.36	2.1	.91	.27	.17	.11	.15	.06
3	.17	.13	.11	.46	.36	1.8	.91	.31	.19	.11	.19	.06
4	.17	.15	.11	.46	.36	1.8	1.7	.31	.17	.11	.17	.06
5	.17	.15	.11	.46	.36	2.2	2.2	.36	.17	.13	.13	.06
6	.15	.15	.10	.46	.33	2.2	1.8	.31	.15	.13	.09	.06
7	.15	.15	.46	.78	.33	2.6	1.4	1.0	.15	.11	.09	.07
8	.15	.13	.55	.71	.33	1.8	1.2	.91	.13	.11	.07	.07
9	.24	.13	.33	.63	.33	1.6	1.1	.61	1.0	.11	.06	.07
10	.17	.11	.33	3.2	.33	1.4	1.0	.51	.36	.11	.06	.07
11	.15	.10	.36	1.2	.33	1.3	.91	.41	.21	.09	.05	.07
12	.15	.13	.55	.95	.33	1.2	.91	.41	.17	.11	.06	.06
13	.15	.13	.55	.88	.88	1.3	.81	.36	.15	.13	.07	.06
14	.17	.13	.46	.95	.71	1.3	.71	.31	.15	.09	.07	.06
15	.24	.15	.46	2.8	.63	1.1	.61	.27	.17	.07	.07	.06
16	.17	.15	.55	1.4	.55	1.1	.61	.23	.17	.07	.06	.07
17	.33	.13	.55	1.0	.46	1.0	.61	.23	.15	.07	.51	.07
18	.33	.13	.46	.95	.46	1.0	.51	.21	.17	.07	.23	.07
19	.31	.13	.46	.88	.46	.91	.51	.21	.15	.07	.07	.07
20	.36	.13	.46	.78	.71	1.4	.51	.21	.19	.07	.07	.07
21	.17	.13	.55	.78	.55	1.3	.61	.21	.19	.61	.07	.07
22	.13	.13	.46	.63	.46	1.6	.51	.19	.19	.13	.07	.07
23	.17	.15	.46	.55	.46	1.5	.51	.19	.17	.09	.06	.07
24	.15	.17	.46	.55	.71	1.3	.91	.21	.19	.09	.07	.07
25	.31	.17	.46	.55	1.0	1.1	.81	.23	.21	.09	.09	.07
26	.46	.24	.95	.55	.78	1.0	.61	.19	.23	.13	.07	.07
27	.15	.24	.71	.55	3.2	1.0	.51	.19	.21	.13	.07	.07
28	.13	.36	.56	.55	5.5	1.0	.36	.17	.19	.13	.07	.07
29	.13	.36	.55	.46	---	.91	.31	.17	.15	.13	.07	.07
30	.13	.17	.55	.46	---	.91	.31	.19	.11	.17	.07	.07
31	.17	---	.55	.46	---	.91	---	.19	---	.17	.06	---
TOTAL	6.29	4.81	13.49	25.96	21.63	44.24	25.28	9.84	6.18	3.85	3.21	2.00
MEAN	.20	.16	.44	.84	.77	1.43	.84	.32	.21	.12	.10	.067
MAX	.46	.36	.95	3.2	5.5	2.6	2.2	1.0	1.0	.61	.51	.07
MIN	.13	.10	.10	.46	.33	.91	.31	.17	.11	.07	.05	.06
CFSM	.12	.09	.26	.49	.45	.83	.49	.19	.12	.07	.06	.04
IN.	.14	.10	.29	.56	.47	.96	.55	.21	.13	.08	.07	.04

CAL YR 1976 TOTAL 285.44 MEAN .78 MAX 15 MIN .09 CFSM .45 IN 6.17
WTR YR 1977 TOTAL 166.78 MEAN .46 MAX 5.5 MIN .05 CFSM .27 IN 3.61

01613900 HOGUE CREEK NEAR HAYFIELD, VA

LOCATION.--Lat 39°12'52", long 78°17'18", Frederick County, Hydrologic Unit 02070004, on right bank 15 ft (5 m) upstream from bridge on State Highway 614, 0.8 mi (1.3 km) upstream from Gap Run, and 1.3 mi (2.1 km) southeast of Hayfield.

DRAINAGE AREA.--15.0 mi² (38.8 km²).

PERIOD OF RECORD.--August 1960 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 668.60 ft (203.780 m) above mean sea level.

REMARKS.--Records good except those for period of no gage-height record, Jan. 2 to Feb. 9, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--17 years, 13.4 ft³/s (0.379 m³/s), 12.13 in/yr (308 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,760 ft³/s (78.2 m³/s) June 22, 1972, gage height, 8.85 ft (2.697 m), from rating curve extended above 870 ft³/s (25 m³/s); no flow for part of Sept. 14, 1968, cause unknown.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft³/s (11 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	0930	*1880	53.2	7.67	2.338	Apr. 5	0230	925	26.2	5.64	1.719

Minimum daily discharge, 0.47 ft³/s (0.013 m³/s) Aug. 28, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	23	4.3	2.7	1.7	6.5	8.5	5.4	1.2	.75	.65	.75
2	48	19	3.6	2.7	1.9	5.8	32	5.0	1.3	.70	.60	.75
3	120	17	3.2	2.7	2.0	4.7	31	5.0	1.3	.65	.60	.90
4	27	15	2.9	2.7	2.0	7.6	72	4.7	1.2	.55	.60	.75
5	14	14	2.9	2.6	1.9	12	386	5.4	1.2	.60	.60	.75
6	9.3	12	2.9	2.5	1.8	10	80	5.0	1.6	.60	.60	.80
7	7.4	10	38	2.5	1.7	9.0	44	5.0	1.5	.80	.60	.95
8	19	9.5	26	2.5	1.6	8.0	32	5.4	1.2	.75	.55	.85
9	546	9.0	19	2.4	1.6	7.3	26	5.4	1.6	.85	.55	.80
10	90	9.0	13	2.4	2.5	6.5	23	5.4	1.5	.95	.50	.85
11	42	8.5	12	2.4	4.0	6.2	18	5.0	1.3	3.6	.50	.80
12	27	8.5	12	2.3	10	6.2	15	5.0	1.2	1.3	.50	.70
13	19	8.0	10	2.2	9.0	146	13	4.7	1.2	1.1	.65	.70
14	14	7.3	8.0	2.1	6.2	71	12	4.3	1.2	.90	.75	.65
15	11	7.3	8.5	2.2	4.2	35	11	3.6	1.2	.90	.70	.70
16	9.5	6.5	9.0	2.1	3.2	22	10	3.4	.95	.90	.65	.75
17	8.5	6.2	8.5	2.0	3.1	15	8.0	3.4	.95	.85	.75	.80
18	7.6	6.2	7.3	1.9	3.3	15	7.6	3.4	.90	.80	.65	.75
19	7.3	6.2	6.2	1.8	3.4	11	7.3	3.6	.80	.75	.55	.70
20	22	5.8	6.5	1.7	4.1	10	6.9	3.4	.80	2.9	.55	.75
21	29	5.8	6.2	1.6	3.8	9.5	6.5	3.2	.85	1.1	.50	.70
22	18	5.4	5.4	1.5	3.8	42	6.2	2.6	.80	1.2	.50	.70
23	14	4.7	5.0	1.5	3.6	37	5.8	1.8	.80	.95	.50	.75
24	36	4.3	4.9	1.5	6.2	23	7.3	1.5	.80	.90	.55	.75
25	77	4.1	4.7	1.6	11	16	7.6	1.4	.80	1.9	.65	.75
26	125	4.1	5.0	1.7	8.5	12	6.5	1.4	.85	1.2	.50	1.3
27	48	3.8	4.7	1.7	8.5	10	6.2	1.3	.75	.85	.50	.95
28	31	4.1	4.3	1.6	8.0	16	5.8	1.2	.80	.80	.47	.90
29	23	5.8	4.3	1.6	---	17	6.5	1.2	.80	.75	.47	.80
30	20	5.4	3.6	1.5	---	12	5.8	1.2	.75	.70	.95	.75
31	31	---	3.4	1.6	---	10	---	1.4	---	.65	.90	---
TOTAL	1534.6	255.5	255.5	63.8	122.6	619.3	907.5	109.7	32.10	32.20	18.59	23.80
MEAN	49.5	8.52	8.24	2.06	4.38	20.0	30.3	3.54	1.07	1.04	.60	.79
MAX	546	23	38	2.7	11	146	386	5.4	1.6	3.6	.95	1.3
MIN	7.3	3.8	2.9	1.5	1.6	4.7	5.8	1.2	.75	.55	.47	.65
CFSM	3.30	.57	.55	.14	.29	1.33	2.02	.24	.07	.07	.04	.05
IN.	3.81	.63	.63	.16	.30	1.54	2.25	.27	.08	.08	.05	.06

CAL YR 1976 TOTAL 4708.85 MEAN 12.9 MAX 546 MIN .65 CFSM .86 IN 11.68
WTR YR 1977 TOTAL 3975.19 MEAN 10.9 MAX 546 MIN .47 CFSM .73 IN 9.86

01615000 OPEQUON CREEK NEAR BERRYVILLE, VA

LOCATION.--Lat 39°10'40", long 78°04'20", Frederick County, Hydrologic Unit 02070007, on left bank between the bridges on State Highway 7, 0.2 mi (0.3 km) upstream from Abrams Creek, and 5.0 mi (8.0 km) west of Berryville.

DRAINAGE AREA.--57.4 mi² (148.7 km²).

PERIOD OF RECORD.--October 1943 to current year.

REVISED RECORDS.--WSP 2103: Drainage area. WDR VA-72: 1971(P).

GAGE.--Water-stage recorder. Datum of gage is 503.24 ft (153.388 m) above mean sea level. Prior to July 26, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good except those for January and February, which are fair. Diurnal fluctuation at low flow caused by mills above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--34 years, 40.1 ft³/s (1.136 m³/s), 9.49 in/yr (241 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,600 ft³/s (300 m³/s) Nov. 13, 1970, gage height, 12.82 ft (3.908 m), from rating curve extended above 4,800 ft³/s (140 m³/s); minimum daily, 0.20 ft³/s (0.006 m³/s) Sept. 12, 13, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1942 reached a stage of 18.4 ft (5.61 m), discharge not determined, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 850 ft³/s (24 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1300	*5690	161	10.88	3.316	Apr. 5	0630	1840	52.1	7.44	2.268

Minimum daily discharge, 2.9 ft³/s (0.082 m³/s) Aug. 11, Sept. 14, 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	154	69	18	11	7.4	17	24	16	7.5	4.5	4.7	4.2
2	251	50	18	11	7.6	15	33	15	7.2	4.2	4.2	9.4
3	449	43	18	11	7.8	14	45	14	6.9	3.9	3.7	9.3
4	106	39	16	10	8.2	16	103	14	6.9	3.9	3.9	7.9
5	61	34	18	10	8.8	30	990	14	6.9	3.9	3.7	6.2
6	45	29	17	10	8.4	27	280	14	6.6	3.9	3.7	12
7	38	28	255	9.8	8.0	21	120	13	6.5	4.2	3.4	7.9
8	95	25	121	9.8	7.8	17	76	13	6.2	4.2	3.7	4.5
9	2550	23	56	9.6	7.6	15	62	11	7.2	4.5	3.5	4.5
10	265	23	39	9.4	10	14	52	11	7.2	5.0	3.0	4.0
11	101	21	36	9.4	16	13	47	11	6.5	5.0	2.9	3.5
12	68	21	36	9.2	27	13	43	11	6.2	5.8	3.9	3.3
13	56	21	32	9.0	19	260	39	10	6.2	8.9	4.7	3.2
14	46	19	23	8.8	16	130	35	9.7	5.5	5.5	5.8	2.9
15	39	19	21	9.2	13	72	30	9.7	5.8	4.5	5.8	3.2
16	34	18	22	9.0	12	45	27	9.3	5.8	4.7	5.0	3.2
17	32	16	22	8.8	11	35	24	8.9	5.8	4.7	5.0	3.2
18	30	18	18	8.6	12	30	23	9.7	5.8	4.5	4.7	2.9
19	27	18	16	8.4	13	28	21	9.3	5.8	4.5	3.9	45
20	75	16	16	8.2	12	26	20	8.6	5.8	5.8	3.4	58
21	156	16	17	8.0	13	27	19	8.2	7.5	8.2	3.2	11
22	65	16	15	7.8	14	110	18	8.2	6.2	7.5	3.2	5.2
23	46	18	14	7.6	19	112	18	8.2	5.5	6.5	3.4	5.5
24	66	18	16	7.8	24	58	19	8.2	5.5	5.0	3.7	5.0
25	178	18	14	8.0	31	42	19	8.6	5.5	6.9	3.9	4.2
26	362	18	14	8.2	24	34	17	8.6	5.5	18	3.4	5.8
27	107	18	14	8.6	22	31	16	8.2	5.2	8.2	3.4	5.2
28	67	18	12	8.6	22	38	16	7.9	5.0	5.8	3.4	5.0
29	53	22	12	8.4	---	45	18	7.9	5.0	5.0	3.9	4.2
30	45	21	12	7.6	---	35	16	7.9	4.5	5.0	4.7	3.9
31	105	---	12	7.0	---	30	---	7.9	---	5.0	3.9	---
TOTAL	5772	733	970	277.8	401.6	1400	2270	322.0	183.7	177.2	122.7	253.3
MEAN	186	24.4	31.3	8.96	14.3	45.2	75.7	10.4	6.12	5.72	3.96	8.44
MAX	2550	69	255	11	31	260	990	16	7.5	18	5.8	58
MIN	27	16	12	7.0	7.4	13	16	7.9	4.5	3.9	2.9	2.9
CFSM	3.24	.43	.55	.16	.25	.79	1.32	.18	.11	.10	.07	.15
IN.	3.74	.48	.63	.18	.26	.91	1.47	.21	.12	.11	.08	.16

CAL YR 1976 TOTAL 18529.9 MEAN 50.6 MAX 2550 MIN 6.9 CFSM .88 IN 12.01
WTR YR 1977 TOTAL 12883.3 MEAN 35.3 MAX 2550 MIN 2.9 CFSM .62 IN 8.35

01620500 NORTH RIVER NEAR STOKESVILLE, VA

LOCATION.--Lat 38°20'15", long 79°14'25", Augusta County, Hydrologic Unit 02070005, George Washington National Forest, on left bank 575 ft (175 m) upstream from highway bridge, 2.8 mi (4.5 km) upstream from city of Staunton dam, 3.8 mi (6.1 km) upstream from Broad Run, 5.0 mi (8.0 km) west of Stokesville, and 7.8 mi (12.6 km) upstream from Skidmore Fork.

DRAINAGE AREA.--17.2 mi^2 (44.5 km^2).

PERIOD OF RECORD.--October 1946 to current year.

REVISED RECORDS.--WSP 1903: 1960. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,054.57 ft (626.233 m) above mean sea level. Prior to June 10, 1958, at site 575 ft (175 m) downstream at datum 6.0 ft (1.83 m) lower.

REMARKS.--Records fair except those for winter periods and those below 2.0 ft^3/s (0.057 m^3/s), which are poor. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--31 years, 25.3 ft^3/s (0.716 m^3/s), 19.98 in/yr (507 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,100 ft^3/s (314 m^3/s) June 17, 1949, gage height, 10.9 ft (3.32 m), from floodmarks, site and datum then in use, from rating curve extended above 900 ft^3/s (25 m^3/s) on basis of computation of peak flow over dam; minimum, 0.10 ft^3/s (0.003 m^3/s) Sept. 15, 16, 19-22, 1962, Sept. 7-13, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1942 reached a stage of 8.4 ft (2.56 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft^3/s (5.7 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 9	0900	*939	26.6	4.97	1.515	Apr. 5	0515	585	16.6	4.35	1.326
Mar. 13	1015	474	13.4	4.11	1.253						

Minimum discharge, 0.25 ft^3/s (0.007 m^3/s) Aug. 22-24, gage height, 1.61 ft (0.491 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	70	21	7.0	2.8	18	14	7.9	3.6	1.2	.45	.39
2	10	62	21	8.5	2.9	16	13	7.5	3.4	1.1	.45	.51
3	21	47	20	7.6	3.0	14	13	7.5	3.2	1.0	.51	.51
4	14	35	18	6.9	2.9	22	47	7.5	3.0	.90	.45	.51
5	9.4	29	17	6.6	2.7	61	420	7.9	2.6	.90	.39	.65
6	6.4	24	16	7.2	2.6	61	207	7.5	2.6	.73	.39	1.3
7	6.7	22	65	6.1	2.6	48	120	7.1	2.6	.65	.39	1.4
8	89	20	103	5.0	2.6	40	86	7.5	2.6	.58	.39	1.1
9	511	18	78	5.4	2.7	32	63	6.7	2.8	.58	.39	.90
10	218	17	55	6.0	2.7	26	49	6.7	3.0	.73	.34	.73
11	44	16	44	4.7	2.8	22	41	6.7	2.8	1.6	.34	.73
12	51	15	39	4.0	3.0	20	32	6.4	2.6	3.4	.29	.65
13	31	14	35	4.4	3.2	312	27	6.0	2.4	3.4	.34	.65
14	20	13	31	4.6	3.2	205	25	5.7	2.6	2.8	.34	.65
15	14	13	28	4.9	3.2	118	23	5.7	3.0	2.4	.34	.65
16	9.9	12	27	4.5	2.8	78	20	5.6	3.0	2.0	.29	.65
17	8.4	12	25	3.2	2.6	58	17	5.0	2.6	1.6	.34	.65
18	7.1	12	22	3.4	2.6	51	16	4.5	2.4	1.4	.34	.58
19	6.4	11	20	3.6	2.7	40	15	4.1	2.2	1.2	.29	.65
20	19	11	18	3.5	2.8	31	14	3.8	2.0	1.0	.29	.81
21	72	11	16	3.3	2.6	25	13	3.6	1.7	.90	.29	.73
22	62	11	15	3.1	2.7	48	12	3.4	1.6	.81	.29	.58
23	42	10	14	3.0	2.8	82	12	3.2	1.6	.65	.25	.51
24	34	9.9	14	3.1	6.4	76	12	3.2	1.6	.58	.45	.51
25	31	9.4	13	3.2	13	59	12	3.2	1.7	.65	.39	.58
26	34	9.4	13	3.4	13	47	11	3.6	1.9	.65	.39	1.1
27	35	8.9	12	3.3	15	32	9.9	3.4	1.7	.65	.39	1.2
28	34	8.9	12	3.0	18	26	9.4	3.2	1.7	.58	.39	1.1
29	31	15	11	2.8	---	21	9.4	3.2	1.4	.51	.51	1.1
30	29	20	11	2.8	---	18	8.4	3.4	1.3	.51	.45	1.1
31	59	---	10	2.8	---	16	---	4.2	---	.45	.39	---
TOTAL	1563.5	586.5	844	140.8	129.9	1723	1369.1	164.9	71.2	36.11	11.54	23.18
MEAN	50.4	19.6	27.2	4.54	4.64	55.6	45.6	5.32	2.37	1.16	.37	.77
MAX	511	70	103	8.5	18	312	420	7.9	3.6	3.4	.51	1.4
MIN	4.2	8.9	10	2.8	2.6	14	8.4	3.2	1.3	.45	.25	.39
CFSM	2.93	1.14	1.58	.26	.27	3.23	2.65	.31	.14	.07	.02	.05
IN.	3.38	1.27	1.83	.30	.28	3.73	2.96	.36	.15	.08	.02	.05

CAL YR 1976 TOTAL 7533.64 MEAN 20.6 MAX 511 MIN .32 CFSM 1.20 IN 16.29
WTR YR 1977 TOTAL 6663.73 MEAN 18.3 MAX 511 MIN .25 CFSM 1.06 IN 14.41

01622000 NORTH RIVER NEAR BURKETOWN, VA

LOCATION.--Lat 38°20'25", long 78°54'50", Rockingham County, Hydrologic Unit 02070005, on right bank 0.8 mi (1.3 km) downstream from Pleasant Run, 2.8 mi (4.5 km) northeast of Burketown, and 8.5 mi (13.7 km) upstream from Middle River.

DRAINAGE AREA.--379 mi² (982 km²).

PERIOD OF RECORD.--October 1925 to October 1972, May 1975 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 1171: 1936(M). WSP 1302: 1928-29(M), 1932-34(M), 1937-38(M). WSP 2105: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,103.49 ft (336.344 m) above mean sea level. Prior to Dec. 12, 1938, nonrecording gage at site 3.0 mi (4.8 km) downstream at different datum.

REMARKS.--Records good except those for period of no gage-height record, Oct. 9-11, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--49 years, 358 ft³/s (10.14 m³/s), 12.83 in/yr (326 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 62,600 ft³/s (1,770 m³/s) June 18, 1949, gage height, 36.3 ft (11.06 m), from floodmarks, from rating curve extended above 16,000 ft³/s (450 m³/s) on basis of slope-area measurements at gage heights 32.4 ft (9.88 m) and 36.3 ft (11.06 m), and contracted-opening measurement at gage height 36.3 ft (11.06 m); minimum, 16 ft³/s (0.45 m³/s) Nov. 23, 1965, result of temporary dam upstream.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1852, that of June 18, 1949.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s (71 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9		*Unknown		Unknown							
Mar. 13	1930	3140	88.9	7.22	2.201	Apr. 5	1030	5040	143	9.42	2.871

Minimum discharge, 29 ft³/s (0.82 m³/s) July 21, gage height, 1.68 ft (0.515 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	207	820	304	176	104	213	263	151	93	52	50	82
2	196	770	296	168	111	229	245	151	88	68	43	57
3	479	667	282	162	111	210	234	148	86	50	52	56
4	342	580	267	162	109	220	336	151	81	54	77	46
5	256	498	259	171	106	441	3930	154	81	52	48	48
6	207	441	269	168	106	508	2980	146	88	48	41	57
7	176	401	1350	157	106	539	1680	143	81	46	44	60
8	224	361	1470	148	104	461	1220	140	77	46	48	54
9	6000	330	1130	140	104	389	898	130	66	43	41	52
10	3000	308	870	133	106	342	670	130	79	44	40	52
11	2000	289	745	130	109	300	560	128	75	68	40	48
12	1250	285	667	135	109	276	465	125	73	58	40	50
13	898	270	560	140	109	1620	409	121	73	60	42	48
14	667	252	490	146	109	2270	377	116	75	56	50	48
15	482	241	457	143	106	1500	350	113	81	48	122	54
16	389	236	437	135	102	1100	319	111	73	44	286	52
17	356	224	405	130	102	820	296	109	73	48	80	52
18	323	220	369	130	100	667	278	106	73	48	54	52
19	282	217	346	121	97	518	259	106	70	44	46	52
20	369	207	330	116	100	441	252	102	73	41	38	62
21	745	203	311	111	97	385	234	97	64	35	40	57
22	820	200	285	111	97	462	213	95	58	43	41	54
23	695	190	276	116	97	695	207	95	62	38	36	50
24	580	190	252	123	106	695	203	93	60	38	65	48
25	560	186	245	121	118	602	193	95	62	54	66	52
26	695	181	245	121	116	518	186	95	58	64	43	123
27	580	181	231	121	157	449	181	86	66	52	43	70
28	539	176	226	118	193	405	171	86	56	43	44	62
29	486	256	220	116	---	361	165	88	56	44	43	58
30	453	289	193	113	---	323	157	104	54	52	41	58
31	732	---	181	109	---	293	---	93	---	48	40	---
TOTAL	24892	9643	13926	4189	3081	18293	17929	3606	2181	1507	1761	1695
MEAN	803	321	449	135	110	590	598	116	72.7	48.6	56.8	56.5
MAX	6000	820	1470	176	193	2270	3930	154	93	68	286	123
MIN	176	176	181	109	97	210	157	86	54	35	36	46
CFSM	2.12	.85	1.19	.36	.29	1.56	1.58	.31	.19	.13	.15	.15
IN.	2.44	.95	1.37	.41	.30	1.80	1.76	.35	.21	.15	.17	.17

CAL YR 1976 TOTAL 123834 MEAN 338 MAX 6000 MIN 56 CFSM .89 IN 12.15
WTR YR 1977 TOTAL 102691 MEAN 281 MAX 6000 MIN 35 CFSM .74 IN 10.08

01624300 MIDDLE RIVER NEAR VERONA, VA

LOCATION.--Lat 38°14'30", long 79°02'08", Augusta County, Hydrologic Unit 02070005, on right bank at downstream side of bridge on State Highway 742, 2.7 mi (4.3 km) downstream from Moffett Creek, and 3.2 mi (5.1 km) northwest of Verona.

DRAINAGE AREA.--178 mi² (461 km²).

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,260.78 ft (384.286 m) above mean sea level.

REMARKS.--Records good. Diurnal fluctuation at low flow caused by mill above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--10 years, 173 ft³/s (4.899 m³/s), 13.20 in/yr (335 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,440 ft³/s (211 m³/s) Mar. 19, 1975; maximum gage height, 13.79 ft (4.203 m) May 30, 1971; minimum discharge, 3.7 ft³/s (0.10 m³/s) Jan. 30, 1977, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,400 ft³/s (40 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1200	*5740	163	11.35	3.459	Apr. 5	0700	2560	72.5	7.38	2.249

Minimum discharge, 3.7 ft³/s (0.10 m³/s) Jan. 30, result of freezeup; minimum daily, 28 ft³/s (0.793 m³/s) Aug. 8-12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	374	206	83	48	123	100	77	48	36	31	47
2	114	308	179	83	49	110	96	75	46	36	30	36
3	230	265	162	84	50	100	96	82	46	35	31	38
4	119	229	144	86	55	105	170	83	45	34	30	40
5	88	201	132	87	60	212	1720	88	44	34	30	36
6	74	179	123	86	49	217	737	79	45	36	29	42
7	67	162	655	84	46	190	452	75	44	34	29	36
8	116	150	641	70	45	162	347	74	43	32	28	37
9	2850	137	404	68	45	141	276	69	46	31	28	37
10	865	130	311	70	46	121	238	67	47	34	28	38
11	454	121	281	64	51	113	212	65	46	37	28	36
12	281	125	281	60	54	109	188	64	44	39	28	33
13	222	118	270	56	65	453	169	62	43	42	32	32
14	188	110	239	52	61	498	156	61	54	36	32	32
15	160	108	224	50	56	311	143	60	55	34	32	34
16	139	107	217	56	53	232	138	58	51	32	42	36
17	133	103	199	52	49	184	130	57	46	32	35	36
18	125	98	177	52	49	160	123	59	43	30	36	36
19	111	96	162	51	50	142	114	58	42	29	30	41
20	152	91	146	50	51	144	109	55	42	32	30	70
21	356	90	135	51	49	139	104	53	40	32	31	41
22	300	89	125	52	47	180	100	53	40	37	32	38
23	234	87	120	54	49	317	96	52	39	36	30	36
24	201	86	111	56	55	273	94	52	40	34	40	35
25	206	84	108	62	116	220	91	54	42	35	42	37
26	662	83	108	66	116	181	89	55	42	36	32	107
27	480	82	111	66	113	154	86	54	40	34	30	60
28	344	83	111	66	123	144	84	52	40	32	30	49
29	273	143	108	55	---	133	83	51	38	32	30	47
30	239	257	93	51	---	120	79	50	36	33	30	43
31	374	---	90	49	---	108	---	50	---	32	76	---
TOTAL	10241	4296	6373	1972	1700	5823	6616	1944	1317	1058	1022	1262
MEAN	330	143	206	63.6	60.7	188	221	62.7	43.9	34.1	33.0	42.1
MAX	2850	374	655	87	123	498	1720	88	55	42	76	107
MIN	67	82	90	49	45	100	79	50	36	29	28	32
CFSM	1.85	.80	1.16	.36	.34	1.06	1.24	.35	.25	.19	.19	.24
IN.	2.14	.90	1.33	.41	.36	1.22	1.38	.41	.28	.22	.21	.26

CAL YR 1976 TOTAL 57925 MEAN 158 MAX 2850 MIN 36 CFSM .89 IN 12.11
WTR YR 1977 TOTAL 43624 MEAN 120 MAX 2850 MIN 28 CFSM .67 IN 9.12

01624800 CHRISTIANS CREEK NEAR FISHERSVILLE, VA

LOCATION.--Lat 38°07'42", long 78°59'41", Augusta County, Hydrologic Unit 02070005, on right bank at upstream side of bridge on State Highway 794, 2.2 mi (3.5 km) northwest of Fishersville, and 5.6 mi (9.0 km) upstream from mouth.

DRAINAGE AREA.--70.1 mi² (181.6 km²).

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,230 ft (375 m), from topographic map.

REMARKS.--Records good except those for period of no gage-height record, Jan. 12 to Feb. 11, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--10 years, 67.9 ft³/s (1.923 m³/s), 13.15 in/yr (334 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,850 ft³/s (109 m³/s) Oct. 5, 1972, gage height, 12.91 ft (3.935 m), from rating curve extended above 2,400 ft³/s (68 m³/s); minimum, 3.8 ft³/s (0.11 m³/s) Jan. 11, 1977, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	0830	*3680	104	12.14	3.700	Oct. 25	0130	1080	30.6	6.36	1.939

Minimum discharge, 3.8 ft³/s (0.11 m³/s) Jan. 11, result of freezeup; minimum daily, 9.7 ft³/s (0.27 m³/s) Aug. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	103	61	37	29	36	34	32	23	14	12	12
2	230	92	58	39	30	33	35	32	21	14	11	12
3	133	88	52	41	31	33	35	40	20	14	12	22
4	58	82	48	43	30	37	116	36	19	15	13	15
5	45	77	46	43	31	50	308	40	19	14	11	14
6	37	71	45	42	29	45	126	33	21	14	11	15
7	32	68	361	41	28	42	108	32	20	14	12	15
8	80	66	145	35	28	37	86	31	19	14	12	15
9	1950	63	105	31	29	37	76	28	22	13	11	14
10	218	62	97	28	30	36	71	27	21	14	9.7	14
11	132	59	100	25	32	35	67	26	19	20	11	13
12	104	65	111	25	36	36	62	25	19	16	14	13
13	91	59	98	25	45	95	58	25	19	14	15	13
14	70	56	84	26	36	63	95	24	38	14	15	12
15	69	56	86	28	32	49	52	24	32	13	14	13
16	64	54	80	28	30	44	50	24	23	12	12	14
17	72	51	78	27	30	38	47	22	21	12	16	14
18	65	49	70	26	30	43	46	25	20	12	17	13
19	59	46	67	26	29	40	46	26	19	11	13	13
20	160	44	62	26	28	43	46	24	18	11	13	14
21	136	44	56	26	27	38	45	22	18	21	12	13
22	93	43	52	26	27	82	41	22	17	37	13	12
23	78	41	50	27	28	71	40	22	19	16	12	12
24	77	40	50	27	38	58	40	22	19	15	16	12
25	142	40	50	28	45	50	39	30	19	16	17	12
26	423	40	53	31	38	46	38	32	19	16	14	14
27	145	41	50	30	40	44	38	24	17	14	14	14
28	118	41	50	30	42	43	35	22	16	14	13	13
29	103	115	49	31	---	41	35	24	16	14	12	12
30	98	77	42	30	---	39	33	26	16	14	12	12
31	138	---	39	29	---	37	---	23	---	13	14	---
TOTAL	4894	1833	2401	957	906	1416	1894	845	609	465	403.7	406
MEAN	158	61.1	77.5	30.9	32.4	45.7	63.1	27.3	20.3	15.0	13.0	13.5
MAX	1950	115	361	43	45	95	308	40	38	37	17	22
MIN	32	40	39	25	27	33	33	22	16	11	9.7	12
CFSM	2.25	.87	1.11	.44	.46	.65	.90	.39	.29	.21	.19	.19
IN.	2.60	.97	1.27	.51	.48	.75	1.01	.45	.32	.25	.21	.22

CAL YR 1976 TOTAL 23005.0 MEAN 62.9 MAX 1950 MIN 15 CFSM .90 IN 12.21
WTR YR 1977 TOTAL 17029.7 MEAN 46.7 MAX 1950 MIN 9.7 CFSM .67 IN 9.04

01625000 MIDDLE RIVER NEAR GROTTOES, VA

LOCATION.--Lat 38°15'42", long 78°51'44", Augusta County, Hydrologic Unit 02070005, on left bank at upstream side of bridge on State Highway 769 at Mount Meridian, 1.8 mi (2.9 km) upstream from mouth, and 2.0 mi (3.2 km) west of Grottoes.

DRAINAGE AREA.--375 mi² (971 km²).

PERIOD OF RECORD.--April 1927 to current year. Records for February 1925 to September 1926, published in WSP 601 and 621, are unreliable and should not be used.

REVISED RECORDS.--WSP 1051: 1928-29, 1930(M), 1932, 1935-37, 1938(M), 1940. WSP 1171: 1933. WSP 1302: 1928-29(M), 1931-34(M). WSP 2103: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 1,061.51 ft (323.548 m) above mean sea level. Prior to Sept. 1, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter periods, which are fair. Small diurnal fluctuation at low flow caused by mills above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--50 years, 303 ft³/s (8.581 m³/s), 10.97 in/yr (279 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,500 ft³/s (694 m³/s) Mar. 18, 1936, gage height, 28.57 ft (8.708 m), from floodmarks, from rating curve extended above 15,000 ft³/s (420 m³/s); minimum observed, 22 ft³/s (0.62 m³/s) Sept. 21, Oct. 3, 12, 1930, gage height, 1.90 ft (0.579 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1877, that of Mar. 18, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft³/s (57 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	2000	*10300	292	17.40	5.304	Apr. 5	1730	2960	83.8	9.94	3.030
Oct. 26	0700	2040	57.8	8.48	2.585						

Minimum discharge, 41 ft³/s (1.16 m³/s) Aug. 11, 12; minimum gage height, 3.38 ft (1.030 m) July 20, Aug. 11, 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	279	672	387	165	110	187	179	148	101	63	53	123
2	380	565	330	155	112	176	171	145	95	62	49	81
3	763	491	303	140	120	163	170	144	91	59	48	67
4	319	440	275	148	122	161	225	170	87	62	51	96
5	212	394	257	155	125	212	1820	178	85	60	51	72
6	169	354	242	145	105	293	1460	165	87	59	45	88
7	148	328	1090	138	95	264	801	150	89	60	46	80
8	233	307	1330	130	98	237	585	146	84	59	46	68
9	5780	287	779	140	100	210	474	137	85	53	44	68
10	3360	277	571	150	110	190	403	130	95	56	46	65
11	898	267	517	140	120	174	361	127	88	73	44	65
12	604	277	562	130	115	168	325	124	86	77	43	58
13	471	278	507	138	110	299	296	120	84	77	48	55
14	391	256	427	143	110	832	274	115	107	70	61	55
15	333	250	393	148	108	500	258	113	157	61	60	55
16	298	248	402	140	105	368	243	112	113	57	57	57
17	288	235	368	123	110	296	232	109	98	55	72	62
18	294	227	328	120	105	258	221	110	90	53	69	61
19	253	218	299	118	105	258	216	118	84	50	66	58
20	400	211	290	125	108	236	208	113	82	45	56	71
21	761	205	289	120	103	224	202	108	79	52	51	101
22	563	201	250	118	100	267	194	101	75	96	50	69
23	446	196	239	120	100	443	185	102	77	76	54	62
24	382	193	229	125	110	422	181	102	78	62	60	61
25	440	191	217	137	149	352	177	105	83	60	82	60
26	1590	188	223	135	190	299	170	126	87	66	79	73
27	989	187	217	130	182	260	165	114	81	61	64	133
28	682	187	210	125	186	239	161	104	76	56	55	90
29	548	348	210	118	---	233	158	110	72	52	53	76
30	471	467	191	110	---	214	154	115	69	53	59	73
31	632	---	184	108	---	196	---	102	---	54	63	---
TOTAL	23377	8945	12116	4137	3313	8631	10669	3863	2665	1899	1725	2203
MEAN	754	298	391	133	118	278	356	125	88.8	61.3	55.6	73.4
MAX	5780	672	1330	165	190	832	1820	178	157	96	82	133
MIN	148	187	184	108	95	161	154	101	69	45	43	55
CFSM	2.01	.80	1.04	.36	.32	.74	.95	.33	.24	.16	.15	.20
IN.	2.32	.89	1.20	.41	.33	.86	1.06	.38	.26	.19	.17	.22

CAL YR 1976 TOTAL 110289 MEAN 301 MAX 5780 MIN 60 CFSM .80 IN 10.94
WTR YR 1977 TOTAL 83543 MEAN 229 MAX 5780 MIN 43 CFSM .61 IN 8.29

01625900 BACK CREEK AT LYNDHURST, VA

LOCATION.--Lat 38°01'44", long 78°55'58", Augusta County, Hydrologic Unit 02070005, on left bank at downstream side of bridge on State Highway 624, 0.7 mi (1.1 km) east of Lyndhurst, 0.7 mi (1.1 km) downstream from Inch Branch, and 0.7 mi (1.1 km) upstream from mouth.

DRAINAGE AREA.--41.2 mi^2 (107 km^2).

PERIOD OF RECORD.--May 1974 to September 1977 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 1,338.83 ft (408 m) above mean sea level (levels by Higgs and Shumate Engineers).

REMARKS.--Records good except those for periods of no gage-height record, Oct. 8 to Nov. 17 and Apr. 14 to May 18, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,000 ft^3/s (113 m^3/s) Mar. 19, 1975, gage height, 7.13 ft (2.173 m); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft^3/s (14 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 9		*Unknown		Unknown		Mar. 13	1400	722	20.4	3.93	1.198
Dec. 7	1330	624	17.7	3.77	1.149						

No flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	100	32	19	9.5	35	37	20	14	.02	.00	.00
2	162	80	27	18	9.3	31	35	21	9.6	.00	.00	.00
3	135	70	24	18	9.4	28	33	20	6.5	.00	.00	.00
4	36	60	23	18	9.6	58	64	15	4.8	.00	.00	.00
5	27	54	22	18	10	136	248	13	3.8	.00	.00	.00
6	21	50	23	16	9.2	107	280	11	4.0	.00	.00	.00
7	18	46	436	16	8.8	83	214	9.0	3.2	.00	.00	.00
8	60	43	405	16	8.1	67	171	8.2	1.5	.00	.00	.00
9	1300	40	204	14	8.1	57	120	8.0	3.0	.00	.00	.00
10	500	40	145	15	8.6	48	98	7.2	3.5	.00	.00	.00
11	300	38	120	15	8.6	42	81	6.8	1.2	.02	.00	.00
12	170	42	107	14	8.8	39	68	6.0	1.3	.00	.00	.00
13	100	35	87	14	9.0	539	60	5.4	1.2	.00	.00	.00
14	60	31	72	14	9.0	541	54	5.2	4.2	.00	.00	.00
15	35	26	68	13	9.0	355	50	5.0	7.4	.00	.00	.00
16	36	25	65	13	8.8	251	48	4.9	4.5	.00	.00	.00
17	36	23	57	13	8.7	181	45	4.8	2.8	.00	.00	.00
18	37	22	48	12	8.7	151	42	4.7	1.6	.00	.00	.00
19	30	20	42	12	8.7	115	40	4.5	1.0	.00	.00	.00
20	70	18	39	12	8.1	94	37	4.0	.45	.00	.00	.00
21	200	18	35	11	8.0	74	35	3.2	.13	.00	.00	.00
22	100	18	33	11	7.7	91	33	2.5	.07	.12	.00	.00
23	70	16	31	11	7.4	105	31	2.2	.04	.06	.00	.00
24	50	14	31	10	25	100	29	2.0	.07	.02	.00	.00
25	100	14	31	10	59	87	27	17	.15	.01	.00	.00
26	300	14	31	10	46	76	25	22	.25	.00	.00	.00
27	150	14	29	10	40	65	24	11	.11	.00	.00	.00
28	130	14	25	9.9	38	60	22	7.4	.09	.00	.00	.00
29	105	31	24	9.8	---	53	21	5.8	.09	.00	.00	.00
30	74	34	22	9.7	---	47	20	4.8	.06	.00	.00	.00
31	160	---	20	9.6	---	42	---	4.8	---	.00	.00	---
TOTAL	4616	1050	2358	412.0	409.1	3758	2092	266.4	80.61	.25	.00	.00
MEAN	149	35.0	76.1	13.3	14.6	121	69.7	8.59	2.69	.008	.000	.000
MAX	1300	100	436	19	59	541	280	22	14	.12	.00	.00
MIN	18	14	20	9.6	7.4	28	20	2.0	.04	.00	.00	.00
CFSM	3.62	.85	1.85	.32	.35	2.94	1.69	.21	.07	.000	.000	.000
IN.	4.17	.95	2.13	.37	.37	3.39	1.89	.24	.07	.00	.00	.00

CAL YR 1976 TOTAL 20633.79 MEAN 56.4 MAX 1300 MIN .00 CFSM 1.37 IN 18.63
WTR YR 1977 TOTAL 15042.36 MEAN 41.2 MAX 1300 MIN .00 CFSM 1.00 IN 13.58

01626000 SOUTH RIVER NEAR WAYNESBORO, VA

LOCATION.--Lat 38°03'27", long 78°54'30", Waynesboro City, Hydrologic Unit 02070005, on right bank 80 ft (20 m) downstream from bridge on State Highway 664, 1.3 mi (2.1 km) southwest of post office at Waynesboro, and 2.4 mi (3.9 km) downstream from Back Creek.

DRAINAGE AREA.--127 mi^2 (329 km^2), of which 41 mi^2 (106 km^2) are above flood-detention structures.

PERIOD OF RECORD.--October 1952 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,296.20 ft (395.082 m) above mean sea level.

REMARKS.--Records good. Flow from 41 mi^2 (106 km^2) above station slightly regulated by flood-detention reservoirs (sixteen of which were built by Soil Conservation Service between 1954 and 1961). Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--25 years, 134 ft^3/s (3.795 m^3/s), 14.33 in/yr (364 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,400 ft^3/s (493 m^3/s) Aug. 20, 1969, gage height, 15.27 ft (4.654 m), from rating curve extended above 4,200 ft^3/s (120 m^3/s) on basis of contracted-opening measurement at gage height 13.95 ft (4.252 m); minimum, 7.0 ft^3/s (0.20 m^3/s) July 18, 1966; minimum daily, 17 ft^3/s (0.48 m^3/s) Aug. 8, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1942 reached a stage of 14.3 ft (4.36 m), from floodmarks, discharge, 14,500 ft^3/s (411 m^3/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft^3/s (28 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 9	1000	*4780	135	9.33	2.844	Mar. 13	0930	1020	28.9	5.45	1.661

Minimum discharge, 24 ft^3/s (0.68 m^3/s) Sept. 19, 20-22, 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	107	279	111	87	57	93	102	69	54	33	28	28
2	256	237	108	92	58	86	99	68	51	33	27	26
3	311	218	102	98	59	81	98	80	45	33	27	34
4	150	202	97	96	62	109	150	70	42	33	28	28
5	104	185	94	95	66	205	422	72	41	33	27	28
6	83	170	91	92	54	176	418	66	43	32	27	28
7	72	158	590	93	56	152	316	62	42	30	26	27
8	91	147	543	83	56	130	264	61	40	30	26	28
9	1780	136	355	84	55	116	221	57	41	31	26	31
10	1220	134	285	76	58	105	197	56	42	32	26	31
11	578	126	271	67	60	98	180	56	40	36	26	28
12	407	131	260	64	61	94	163	55	40	32	29	28
13	286	125	234	65	73	685	151	53	39	31	30	28
14	216	118	206	66	67	573	143	51	45	30	33	28
15	180	116	201	69	63	366	135	51	54	29	34	27
16	157	114	206	66	58	271	127	50	45	29	27	28
17	160	107	189	63	55	212	120	48	42	28	28	32
18	159	104	172	60	56	192	114	47	40	28	28	32
19	135	100	160	59	58	174	108	49	39	28	30	27
20	202	96	160	60	57	161	103	48	38	28	28	27
21	343	94	162	60	55	145	100	50	36	39	28	24
22	272	91	139	62	54	176	96	45	36	72	28	24
23	221	87	137	64	55	199	92	43	38	40	28	25
24	200	84	126	67	76	184	92	41	38	34	36	26
25	209	84	123	68	135	169	88	56	38	33	33	25
26	517	82	132	67	109	156	84	92	37	32	29	26
27	456	82	127	68	101	142	82	60	36	30	28	26
28	345	83	123	67	102	135	78	56	36	29	29	26
29	290	127	121	57	---	128	75	48	35	29	28	25
30	252	134	105	59	---	118	73	47	34	29	28	25
31	300	---	110	59	---	111	---	47	---	28	28	---
TOTAL	10059	3951	5840	2233	1876	5742	4491	1754	1227	1014	884	826
MEAN	324	132	188	72.0	67.0	185	150	56.6	40.9	32.7	28.5	27.5
MAX	1780	279	590	98	135	685	422	92	54	72	36	34
MIN	72	82	91	57	54	81	73	41	34	28	26	24
CFSM	2.55	1.04	1.48	.57	.53	1.46	1.18	.45	.32	.26	.22	.22
IN.	2.95	1.16	1.71	.65	.55	1.68	1.32	.51	.36	.30	.26	.24

CAL YR 1976 TOTAL 51939 MEAN 142 MAX 1780 MIN 33 CFSM 1.12 IN 15.21
WTR YR 1977 TOTAL 39897 MEAN 109 MAX 1780 MIN 24 CFSM .86 IN 11.69

01626850 SOUTH RIVER NEAR DOOMS, VA

LOCATION.--Lat 38°05'19", long 78°52'38", Augusta County, Hydrologic Unit 02070005, on upstream side of Hopeman Parkway Road bridge near center span, 1.1 mi (1.8 km) downstream from *Steele Run, and 1.6 mi (2.6 km) southwest* of Dooms.

DRAINAGE AREA.--149 mi^2 (386 km^2).

PERIOD OF RECORD.--April 1974 to current year.

GAGE.--Nonrecording gage. Altitude of gage is 1,250 ft (381 m), from topographic map.

REMARKS.--Records fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 8,000 ft^3/s (227 m^3/s) Mar. 19, 1975, gage height, 12.02 ft (3.664 m); minimum observed, 44 ft^3/s (1.25 m^3/s) Aug. 11, Sept. 22, 23, 24-25, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge observed, 6,040 ft^3/s (171 m^3/s) Oct. 9, gage height, 11.31 ft (3.447 m); minimum observed, 44 ft^3/s (1.25 m^3/s) Aug. 11, Sept. 22, 23, 24-25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	174	336	159	145	84	127	140	100	86	52	48	50
2	536	300	152	138	88	120	133	100	76	52	48	50
3	308	282	148	136	92	120	136	114	66	50	48	50
4	210	264	145	140	97	149	230	106	64	54	50	52
5	154	247	140	136	106	247	590	108	68	57	52	52
6	128	225	143	133	92	210	510	100	66	53	52	50
7	114	215	1230	133	84	186	372	97	66	52	48	50
8	144	206	714	124	81	169	318	92	61	53	48	50
9	3720	193	430	115	86	153	280	81	64	56	48	57
10	1490	193	354	100	94	146	247	81	66	58	46	55
11	714	179	336	94	97	140	230	81	66	61	46	52
12	510	186	300	92	97	130	203	81	64	64	64	46
13	372	180	282	90	100	1450	193	81	61	55	52	48
14	336	172	264	88	103	756	179	78	86	52	55	48
15	247	166	247	86	97	450	172	76	84	52	59	48
16	235	172	264	86	92	336	159	71	71	52	52	50
17	250	159	247	84	81	264	156	74	66	52	57	52
18	230	159	230	80	81	247	149	68	66	52	48	53
19	199	156	215	80	89	213	146	71	66	52	50	48
20	282	146	210	82	92	199	140	71	61	50	48	50
21	430	142	206	84	86	186	136	68	57	162	48	46
22	336	140	189	88	81	247	133	66	55	103	52	46
23	300	136	180	90	86	247	130	66	57	85	50	46
24	264	133	175	94	108	230	127	66	61	74	143	44
25	264	130	170	100	182	213	120	94	61	53	57	44
26	714	135	168	103	149	203	117	146	64	53	50	52
27	550	142	166	97	136	189	114	94	61	50	50	50
28	430	160	166	103	140	179	111	86	61	50	50	52
29	354	193	162	94	---	166	106	78	59	48	50	46
30	300	203	146	90	---	159	106	80	57	48	48	48
31	370	---	149	86	---	146	---	74	---	48	50	---
TOTAL	14665	5650	8087	3191	2801	7977	5883	2649	1967	1853	1667	1485
MEAN	473	188	261	103	100	257	196	85.5	65.6	59.8	53.8	49.5
MAX	3720	336	1230	145	182	1450	590	146	86	162	143	57
MIN	114	130	140	80	81	120	106	66	55	48	46	44
CFSM	3.17	1.26	1.75	.69	.67	1.73	1.32	.57	.44	.40	.36	.33
IN.	3.66	1.41	2.02	.80	.70	1.99	1.47	.66	.49	.46	.42	.37

CAL YR 1976 TOTAL 75918 MEAN 207 MAX 3720 MIN 58 CFSM 1.39 IN 18.95
WTR YR 1977 TOTAL 57875 MEAN 159 MAX 3720 MIN 44 CFSM 1.07 IN 14.45

01627500 SOUTH RIVER AT HARRISTON, VA

LOCATION.--Lat 38°13'07", long 78°50'13", Augusta County, Hydrologic Unit 02070005, on left bank 100 ft (30 m) downstream from bridge on State Highway 778, 0.3 mi (0.5 km) northwest of Harriston, 0.6 mi (1.0 km) downstream from Paine Run, and 7.2 mi (11.6 km) upstream from confluence with North River.

DRAINAGE AREA.--212 mi² (549 km²).

PERIOD OF RECORD.--February 1925 to September 1951, October 1968 to current year.

REVISED RECORDS.--WSP 1171: 1926(M), 1927-28, 1929-32(M), 1933, 1934(M), 1935, 1937. WSP 1302: 1937(M), 1938(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,129.87 ft (344.384 m) above mean sea level. Prior to Sept. 1, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--35 years, 248 ft³/s (7.023 m³/s), 15.89 in/yr (404 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,100 ft³/s (654 m³/s) Oct. 15, 1942, gage height, 17.2 ft (5.24 m), from rating curve extended above 10,000 ft³/s (280 m³/s); minimum, 17 ft³/s (0.48 m³/s) Nov. 14, 1941.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in 1870 and 1877 reached a stage of about 18.8 ft (5.73 m), from information by observer in 1925.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,200 ft³/s (34 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1530	*8250	234	10.62	3.237	Mar. 13	1700	1790	50.7	6.00	1.829
Dec. 7	1430	1580	44.7	5.68	1.731						

Minimum discharge, 49 ft³/s (1.39 m³/s) Aug. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	221	442	206	164	100	156	161	119	88	65	53	55
2	426	380	201	161	102	149	154	115	92	63	52	54
3	703	350	192	161	106	142	154	119	82	62	53	56
4	328	323	181	167	111	144	228	135	76	62	54	56
5	218	301	175	169	117	273	633	129	74	62	55	55
6	172	276	169	167	109	270	740	117	79	61	55	55
7	149	259	1000	164	95	235	552	111	76	57	52	56
8	178	245	1040	149	92	209	459	109	72	56	52	53
9	3840	228	665	133	90	189	384	102	74	57	52	57
10	2240	221	508	121	104	175	331	98	76	59	51	59
11	1060	212	472	113	109	167	301	96	73	62	51	55
12	665	218	459	109	111	161	266	93	72	63	52	53
13	498	209	417	108	119	1010	238	93	72	61	59	53
14	373	201	365	106	123	1100	232	90	103	57	57	53
15	309	195	353	106	117	642	228	85	100	56	60	52
16	270	189	357	104	111	490	215	84	85	56	59	55
17	270	181	334	104	108	369	204	85	79	54	55	56
18	270	172	309	104	106	323	192	85	74	55	55	61
19	228	169	284	98	109	298	183	85	73	55	53	56
20	330	164	270	95	111	262	172	85	72	55	54	56
21	566	161	252	98	106	232	167	82	68	66	53	54
22	472	159	238	102	106	274	161	85	67	120	54	51
23	380	151	228	106	106	342	156	78	67	72	53	51
24	338	149	225	108	117	309	156	78	67	63	80	52
25	346	147	218	109	192	280	154	94	73	62	72	52
26	910	147	225	121	178	252	142	142	72	61	60	54
27	820	144	221	121	164	221	137	108	66	59	56	54
28	598	147	201	121	164	206	131	98	74	55	55	53
29	494	218	178	111	---	201	127	92	67	54	55	53
30	421	249	169	104	---	189	121	95	66	54	54	53
31	468	---	164	100	---	178	---	87	---	53	55	---
TOTAL	18561	6607	10276	3804	3283	9448	7479	3074	2279	1897	1731	1633
MEAN	599	220	331	123	117	305	249	99.2	76.0	61.2	55.8	54.4
MAX	3840	442	1040	169	192	1100	740	142	103	120	80	61
MIN	149	144	164	95	90	142	121	78	66	53	51	51
CFSM	2.83	1.04	1.56	.58	.55	1.44	1.18	.47	.36	.29	.26	.26
IN.	3.26	1.16	1.80	.67	.58	1.66	1.31	.54	.40	.33	.30	.29

CAL YR 1976 TOTAL 91274 MEAN 249 MAX 3840 MIN 64 CFSM 1.18 IN 16.02
WTR YR 1977 TOTAL 70072 MEAN 192 MAX 3840 MIN 51 CFSM .91 IN 12.30

01628500 SOUTH FORK SHENANDOAH RIVER NEAR LYNNWOOD, VA

LOCATION (REVISED).--Lat 38°19'21", long 78°45'18", Rockingham County, Hydrologic Unit 02070005, on left bank 1.2 mi (1.9 km) northeast of Lynnwood and 3.3 mi (5.3 km) downstream from confluence of North and South Rivers.

DRAINAGE AREA.--1,084 mi² (2,808 km²).

PERIOD OF RECORD.--September 1930 to current year.

REVISED RECORDS.--WSP 1171: 1933(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,013.17 ft (308.814 m) above mean sea level.

REMARKS.--Records good. Diurnal fluctuation at low flow prior to 1960 caused by mill at Lynnwood. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--47 years, 972 ft³/s (27.53 m³/s), 12.18 in/yr (309 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 80,000 ft³/s (2,270 m³/s) Oct. 15, 1942, gage height, 27.2 ft (8.29 m), from rating curve extended above 22,000 ft³/s (620 m³/s) on basis of computations of flow over dam at gage heights 23.60 ft (7.193 m) and 27.2 ft (8.29 m); minimum, 32 ft³/s (0.91 m³/s) Sept. 20, 1932, gage height 1.63 ft (0.497 m); minimum daily, 93 ft³/s (2.63 m³/s) Sept. 21, 29, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, that of Oct. 15, 1942.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 7,000 ft³/s (200 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	2000	*26500	750	17.99	5.483	Apr. 5	1830	8420	238	10.15	3.094

Minimum discharge, 152 ft³/s (4.30 m³/s) July 21; minimum gage height, 1.96 ft (0.597 m) July 21, Aug. 11, 12, 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	635	2070	920	539	390	579	658	444	300	201	174	217
2	782	1840	837	567	400	576	626	431	300	195	172	245
3	1890	1610	787	607	412	551	615	424	287	191	167	198
4	922	1440	725	579	415	546	703	455	273	188	190	224
5	573	1270	692	570	423	809	5420	467	267	189	185	206
6	454	1130	662	555	394	1160	5560	450	270	187	172	207
7	397	1040	3060	543	388	1090	3360	424	273	180	165	217
8	462	959	4130	507	404	970	2480	414	261	178	165	208
9	14300	890	2820	460	397	867	1940	393	261	174	164	202
10	10900	842	2160	498	393	744	1560	379	268	177	160	208
11	4400	801	1870	480	398	674	1320	376	263	198	157	194
12	2830	809	1810	420	408	633	1140	372	256	211	157	187
13	2100	744	1620	450	416	1990	1010	358	248	200	169	187
14	1580	732	1390	485	430	4370	930	351	272	197	180	183
15	1240	707	1280	495	417	2880	864	339	330	184	186	182
16	1040	692	1270	450	403	2130	749	335	244	174	367	186
17	963	661	1190	385	385	1610	747	333	263	169	226	196
18	947	643	1080	380	375	1310	688	326	255	168	204	195
19	823	626	996	415	382	1160	665	336	249	163	195	197
20	1030	610	955	425	391	1000	638	329	242	160	183	203
21	2190	592	941	440	380	912	612	321	237	155	173	232
22	1990	579	840	450	373	942	586	315	226	225	170	207
23	1650	560	795	465	372	1500	553	305	227	228	173	193
24	1410	550	750	468	385	1510	541	303	230	185	179	189
25	1400	547	707	459	479	1330	534	306	235	183	255	191
26	3480	535	729	437	516	1160	509	354	244	203	217	249
27	2690	534	708	430	519	1020	493	335	235	193	193	283
28	2000	531	685	424	555	928	477	310	229	181	181	235
29	1650	780	681	410	---	868	469	301	222	169	176	214
30	1440	1020	635	400	---	787	454	339	209	174	181	206
31	1900	---	621	390	---	718	---	304	---	180	180	---
TOTAL	70068	26394	38346	14603	11600	37304	36951	11229	7726	5760	5816	6245
MEAN	2260	880	1237	471	414	1203	1232	362	258	186	188	208
MAX	14300	2070	4130	607	555	4370	5560	467	330	228	367	283
MIN	397	531	621	380	372	546	454	301	209	155	157	182
CFSM	2.09	.81	1.14	.44	.38	1.11	1.14	.33	.24	.17	.17	.19
IN.	2.40	.91	1.32	.50	.40	1.28	1.27	.39	.27	.20	.20	.21

CAL YR 1976 TOTAL 343615 MEAN 939 MAX 14300 MIN 185 CFSM .87 IN 11.79
WTR YR 1977 TOTAL 272042 MEAN 745 MAX 14300 MIN 155 CFSM .69 IN 9.34

01631000 SOUTH FORK SHENANDOAH RIVER AT FRONT ROYAL, VA

LOCATION.--Lat 38°54'50", long 78°12'40", Warren County, Hydrologic Unit 02070005, on left bank 0.7 mi (1.1 km) downstream from bridge on State Highway 619, 1.0 mi (1.6 km) west of Front Royal, and 3.5 mi (5.6 km) upstream from confluence with North Fork.

DRAINAGE AREA.--1,642 mi² (4,253 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1899 to September 1906, September 1930 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 951: 1936(M). WSP 1171: 1935(M), 1937(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 469.38 ft (143.067 m) above mean sea level. June 1899 to July 1906, nonrecording gage at site 1.0 mi (1.6 km) upstream at different datum.

REMARKS.--Records good. Large diurnal fluctuation at low and medium flow caused by powerplants above station prior to 1954; occasional large diurnal fluctuation thereafter. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--54 years, 1,570 ft³/s (44.46 m³/s), 12.98 in/yr (330 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 130,000 ft³/s (3,680 m³/s) Oct. 16, 1942, gage height, 34.8 ft (10.61 m), from floodmark in gage well, from rating curve extended above 92,000 ft³/s (2,600 m³/s) on basis of slope-area measurement of peak flow; minimum, 59 ft³/s (1.67 m³/s) Jan. 30, 1934, gage height, 0.56 ft (0.171 m); minimum daily, 103 ft³/s (2.92 m³/s) Sept. 30, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, that of Oct. 16, 1942.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 8,500 ft³/s (240 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 10	1545	*31900	903	14.12	4.304	Apr. 6	1330	10000	283	7.25	2.210

Minimum discharge, 218 ft³/s (6.17 m³/s) Aug. 12; minimum gage height, 0.88 ft (0.268 m) July 23, Aug. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	704	2700	1400	849	630	780	1180	726	530	299	258	352
2	1300	2840	1330	903	630	763	1100	718	478	303	249	259
3	2620	2570	1210	925	610	776	1050	705	424	277	253	303
4	2110	2320	1140	984	650	782	1120	698	416	268	265	377
5	1960	2090	1070	1010	736	783	2870	724	407	271	253	334
6	1340	1870	1030	974	640	797	7450	763	409	271	251	297
7	1030	1640	1400	892	620	1260	6760	785	396	269	269	303
8	927	1560	4690	852	640	1380	4530	736	374	268	274	340
9	4560	1450	5350	849	660	1220	3450	670	421	263	252	400
10	26000	1360	3800	847	728	1110	2740	647	417	259	247	320
11	11100	1250	3010	700	711	1020	2330	617	381	245	386	305
12	5610	1240	2670	640	684	904	2010	583	382	272	236	281
13	3870	1210	2530	660	642	1330	1790	586	386	270	230	294
14	2940	1180	2280	700	630	3550	1600	582	381	290	254	288
15	2300	1130	2010	750	659	5500	1470	562	403	292	262	297
16	1910	1100	1860	680	715	3790	1380	540	393	269	249	265
17	1600	1070	1810	600	704	2880	1240	514	505	269	296	282
18	1470	1020	1740	630	650	2310	1210	513	473	265	460	266
19	1400	981	1600	640	567	1930	1120	513	404	250	401	291
20	1350	959	1490	700	550	1730	1080	509	372	280	296	582
21	1790	925	1420	660	657	1530	1050	508	376	265	279	367
22	3010	918	1356	670	568	1600	980	500	347	254	274	332
23	2790	894	1290	690	520	1930	951	463	335	236	259	314
24	2410	868	1160	700	533	2280	898	464	304	251	265	327
25	2170	843	1150	710	550	2240	879	471	332	336	308	304
26	2580	804	1110	700	597	2040	870	444	357	353	291	299
27	5000	846	1090	710	696	1810	854	453	366	315	297	322
28	3890	826	1060	690	706	1670	789	500	358	288	350	345
29	3000	878	1060	670	---	1530	809	504	351	280	291	413
30	2510	965	1030	650	---	1390	779	465	321	266	312	380
31	2420	---	999	640	---	1240	---	457	---	267	261	---
TOTAL	108691	40357	56159	23415	17863	53945	56889	17920	11799	8581	8808	9839
MEAN	3506	1345	1812	755	638	1740	1896	578	393	277	284	328
MAX	26000	2840	5350	1010	736	5500	7450	785	530	353	460	582
MIN	704	804	999	600	520	763	779	444	304	236	230	259
CFSM	2.14	.82	1.10	.46	.39	1.06	1.16	.35	.24	.17	.17	.20
IN.	2.46	.91	1.27	.53	.40	1.22	1.29	.41	.27	.19	.20	.22

CAL YR 1976 TOTAL 532063 MEAN 1454 MAX 26000 MIN 284 CFSM .89 IN 12.05
WTR YR 1977 TOTAL 414266 MEAN 1135 MAX 26000 MIN 230 CFSM .69 IN 9.39

01631000 SOUTH FORK SHENANDOAH RIVER AT FRONT ROYAL, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1949, 1953-56, 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1952 to September 1956, April 1968 to current year.
WATER TEMPERATURES: October 1952 to September 1956, April 1968 to current year.
SUSPENDED-SEDIMENT DISCHARGE: April 1953 to September 1956.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 485 micromhos Jan. 29, 1977; minimum, 81 micromhos Aug. 3, 1969.
WATER TEMPERATURES: Maximum, 32.0°C July 5, 1955; minimum, 0.0°C on several days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 485 micromhos Jan. 29; minimum, 110 micromhos Mar. 17.
WATER TEMPERATURES: Maximum, 29.0°C July 13, 21; minimum, 0.0°C Jan. 1.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
NOV 15...	0845	1140	223	0	110	25	31	8.3	5.0	2.2	105	17
DEC 15...	0800	2060	240	0	110	25	31	8.1	5.9	1.9	105	15
FEB 15...	0800	650	325	5	150	20	39	12	12	2.6	154	22
MAR 15...	0845	5800	170	10	75	17	20	6.1	6.0	1.8	71	14
APR 15...	0820	1490	260	10	120	19	32	9.2	8.8	2.3	120	17
MAY 15...	0930	566	215	10	94	14	26	7.1	5.7	1.8	98	13
JUN 15...	0830	397	375	5	170	17	43	14	17	3.5	180	25
JUL 15...	0840	295	398	10	120	0	45	1.5	20	3.8	200	27
AUG 15...	0800	243	360	3	170	22	45	14	17	3.4	180	26
SEP 15...	0830	302	419	0	170	13	43	15	21	4.2	190	32

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED NITRATE (N) (MG/L)	DISSOLVED NITRATE (NO3) (MG/L)	DISSOLVED NITRITE (N) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO PHOSPHATE (PO4) (MG/L)	DISSOLVED IRON (FE) (UG/L)
NOV 15...	6.4	.1	5.8	136	134	1.3	5.8	.00	1.3	.07	.21	10
DEC 15...	8.2	.1	4.5	129	133	1.3	5.8	.00	1.3	.09	.28	10
FEB 15...	12	.1	.7	195	184	1.6	7.0	.01	1.6	.25	.77	20
MAR 15...	6.4	.0	3.3	109	98	1.0	4.6	.06	1.1	.17	.52	20
APR 15...	8.8	.1	3.9	160	146	1.0	4.4	.00	1.0	.20	.61	0
MAY 15...	6.6	.0	3.1	119	112	--	--	--	--	--	--	10
JUN 15...	16	.1	9.4	220	222	.95	4.2	.01	.96	.45	1.4	0
JUL 15...	17	.1	15	243	231	.68	3.0	.00	.68	.02	.06	10
AUG 15...	17	.1	.5	210	215	.49	2.2	.01	.50	.32	.98	10
SEP 15...	19	.1	6.2	243	241	1.4	6.2	.00	1.4	.37	1.1	10

01631000 SOUTH FORK SHENANDOAH RIVER AT FRONT ROYAL, VA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	260	202	258	300	365	340	200	280	310	375	380	402
2	240	237	320	305	340	330	203	293	303	373	370	390
3	300	241	318	320	345	315	215	300	394	378	378	350
4	240	253	305	315	335	320	220	230	388	380	372	332
5	275	212	318	---	330	295	165	298	383	383	379	350
6	200	213	310	---	320	300	175	312	394	378	381	383
7	220	230	298	---	365	285	162	280	398	370	382	401
8	208	241	240	---	365	270	130	240	399	380	380	410
9	200	242	220	---	345	260	138	320	388	395	380	419
10	188	255	175	---	350	258	150	305	376	360	378	420
11	186	260	150	---	320	240	162	328	380	365	378	420
12	180	218	170	---	315	200	175	343	388	370	376	405
13	173	272	185	---	290	195	250	352	350	380	381	408
14	152	255	200	---	305	180	200	355	355	398	381	412
15	180	234	240	---	325	170	260	355	375	398	380	415
16	224	290	240	---	300	160	220	359	355	396	327	419
17	230	287	240	---	315	110	222	363	378	395	360	420
18	240	245	245	---	325	120	240	364	370	390	362	420
19	258	260	225	---	320	125	240	345	330	398	370	408
20	276	279	225	---	295	135	245	346	333	393	378	386
21	262	310	260	---	285	145	250	313	360	398	383	359
22	270	291	260	---	280	140	260	285	370	395	375	365
23	265	315	260	---	300	150	260	281	392	385	390	348
24	285	305	220	---	310	180	270	368	380	380	399	379
25	242	308	270	---	310	182	275	376	380	383	408	392
26	220	318	275	---	315	195	275	325	330	383	388	400
27	218	320	285	360	325	204	280	296	356	382	381	403
28	199	320	290	375	340	185	290	290	358	380	400	401
29	215	310	280	485	---	180	290	279	360	380	410	408
30	215	305	295	365	---	180	293	368	363	382	410	419
31	205	---	220	315	---	190	---	339	---	384	417	---
MEAN	227	270	252	349	322	211	225	319	367	383	381	395

01631000 SOUTH FORK SHENANDOAH RIVER AT FRONT ROYAL, VA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	9.0	4.0	0.0	4.0	9.0	15.5	16.0	26.0	27.0	24.5	27.0
2	18.0	9.0	5.0	0.5	3.0	8.5	16.5	20.0	28.0	24.0	25.0	28.0
3	17.0	10.0	3.0	2.0	2.5	8.0	17.0	19.5	27.0	23.0	25.0	21.5
4	18.0	9.0	2.0	2.5	2.0	8.5	16.0	21.0	26.0	26.0	25.0	26.0
5	17.0	9.0	5.0	---	3.0	9.0	12.0	21.0	23.0	25.0	26.0	25.0
6	19.0	8.0	6.0	---	1.5	10.0	11.0	22.0	23.0	27.0	27.0	26.0
7	20.0	9.0	5.0	---	1.0	10.0	9.0	20.0	19.0	28.0	27.0	27.0
8	20.0	6.0	5.0	---	2.0	9.5	8.5	18.0	17.5	28.0	26.0	26.0
9	19.0	5.0	2.0	---	4.0	10.0	9.0	16.0	18.0	28.0	26.0	24.0
10	16.0	6.0	4.0	---	3.5	11.0	10.0	15.0	18.0	27.5	27.0	24.0
11	15.0	7.0	2.5	---	3.0	11.0	11.0	15.0	17.0	27.5	28.0	20.0
12	14.5	6.0	6.0	---	3.0	10.0	16.5	16.0	19.0	28.0	26.0	17.5
13	15.0	5.0	6.0	---	3.5	9.5	20.0	19.0	23.0	29.0	26.0	22.0
14	13.0	4.0	3.5	---	4.0	11.0	17.0	20.0	21.0	27.0	26.0	24.0
15	13.5	13.0	5.0	---	5.0	11.5	13.5	20.0	24.0	27.5	26.0	21.0
16	14.0	6.0	6.0	---	1.5	12.0	13.5	20.0	27.0	27.5	26.0	20.0
17	15.0	5.0	6.0	---	1.0	10.5	18.0	21.0	25.0	28.0	26.0	23.0
18	13.0	6.0	5.5	---	1.5	11.0	18.0	22.5	25.0	26.0	23.0	24.0
19	13.0	6.0	5.0	---	3.0	11.5	19.0	24.0	26.0	27.0	23.0	25.0
20	13.0	8.0	6.0	---	4.0	12.0	19.0	28.0	25.0	28.0	22.5	24.0
21	10.0	7.0	3.5	---	1.5	12.0	19.0	28.0	23.0	29.0	22.0	24.0
22	11.0	8.0	1.5	---	4.0	10.5	22.0	24.5	22.0	28.0	24.0	20.5
23	9.0	5.0	4.0	---	4.0	8.5	22.5	28.0	21.0	25.0	24.0	24.0
24	12.0	4.0	0.5	---	2.5	8.0	24.0	25.0	24.0	25.0	23.0	21.0
25	12.0	4.0	2.0	---	3.0	8.0	19.5	24.0	24.0	27.0	22.0	24.0
26	12.0	9.0	2.5	---	10.0	8.5	14.5	22.5	23.0	26.0	24.0	23.0
27	10.0	8.0	3.0	3.0	10.0	9.5	15.0	24.0	23.0	28.0	24.0	21.0
28	9.0	9.0	4.0	1.5	9.5	11.5	16.0	27.0	25.0	27.0	24.0	21.0
29	8.0	7.0	3.5	1.5	---	14.5	15.5	25.0	26.0	24.0	26.0	18.5
30	9.0	3.0	1.5	4.0	---	17.0	16.5	25.0	24.0	24.5	26.0	19.0
31	10.0	---	2.0	0.5	---	16.5	---	24.0	---	25.0	26.0	---
MEAN	14.0	7.0	4.0	1.5	3.5	10.5	16.0	21.5	23.0	27.0	25.0	23.0

01632000 NORTH FORK SHENANDOAH RIVER AT COOTES STORE, VA

LOCATION.--Lat 38°38'13", long 78°51'11", Rockingham County, Hydrologic Unit 02070006, on right bank at Cootes Store, 300 ft (90 m) upstream from bridge on State Highway 259, and 3.7 mi (6.0 km) upstream from Linville Creek.

DRAINAGE AREA.--210 mi^2 (544 km^2).

PERIOD OF RECORD.--February 1925 to current year.

REVISED RECORDS.--WSP 726: 1928-31. WSP 951: 1936, 1939(M). WSP 1171: 1935, 1937, 1938(M). WSP 1502: 1926, 1927-28(M), 1929, 1930-34(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,051.8 ft (320.59 m) above mean sea level (Corps of Engineers bench mark). Prior to Nov. 15, 1937, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are fair, and those below 5.0 ft^3/s (0.14 m^3/s), which are poor. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--52 years, 187 ft^3/s (5.296 m^3/s), 12.09 in/yr (307 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft^3/s (1,420 m^3/s) Oct. 15, 1942, gage height, 25.3 ft (7.71 m), from floodmark, from rating curve extended above 9,000 ft^3/s (250 m^3/s) on basis of contracted-opening measurement of peak flow; minimum, 0.20 ft^3/s (0.006 m^3/s) Aug. 28, 29, Sept. 4, 1957, Sept. 7-10, 1966; minimum gage height, 1.74 ft (0.530 m) Sept. 7-10, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1836, that of Oct. 15, 1942.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,500 ft^3/s (99 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 9	1030	*18500	524	16.98	5.176	Apr. 5	0400	8120	230	11.70	3.566
Mar. 13	1100	4790	136	9.24	2.816						

Minimum daily discharge, 0.61 ft^3/s (0.017 m^3/s) Aug. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	351	418	88	26	12	167	126	43	9.0	3.2	.86	.86
2	811	340	91	30	13	144	112	39	8.3	3.0	.86	.86
3	1710	275	86	27	13	128	105	38	7.2	2.6	.92	1.1
4	598	226	83	25	14	163	424	39	6.8	2.4	1.0	.92
5	291	187	78	26	12	367	5100	38	6.5	2.3	.86	.68
6	187	157	73	27	12	311	1500	35	6.5	2.1	.86	1.3
7	135	133	1660	25	12	257	751	38	5.6	1.8	.76	3.6
8	155	118	1220	24	13	215	506	37	5.3	1.7	.76	3.6
9	9040	106	653	22	13	185	357	36	6.2	1.5	.76	3.6
10	2090	95	414	20	14	163	286	32	5.3	1.7	.86	3.6
11	731	86	319	18	14	145	236	31	5.0	1.9	.68	3.2
12	386	83	263	17	15	132	198	29	4.8	2.6	.69	3.6
13	269	75	220	17	14	2610	175	26	4.5	2.6	.78	4.8
14	178	67	182	16	14	1560	159	27	5.3	1.8	.86	3.8
15	140	63	166	17	15	766	144	28	5.6	1.5	.86	4.0
16	110	61	157	19	17	483	127	26	4.8	1.6	.76	3.8
17	97	59	146	15	15	362	116	22	16	1.2	1.1	3.8
18	82	58	129	15	16	295	103	20	11	1.3	1.1	3.6
19	67	58	112	15	17	266	97	19	6.5	1.1	.92	3.2
20	200	57	104	14	19	219	92	19	5.6	1.1	.76	4.0
21	488	57	94	14	17	196	82	17	4.8	1.0	.61	3.0
22	371	55	80	13	16	365	76	16	4.5	1.0	.68	2.8
23	263	52	68	13	15	597	68	15	4.3	.92	.68	2.6
24	208	49	60	13	30	472	67	14	3.8	.86	1.1	2.3
25	142	46	54	13	264	357	64	14	6.2	1.1	.86	2.4
26	365	44	58	14	226	279	61	13	7.9	1.2	.68	28
27	370	43	52	15	201	224	57	12	5.3	1.1	.68	25
28	290	42	47	13	188	200	52	11	4.8	1.0	.68	14
29	229	75	40	12	---	181	52	10	4.0	.92	.68	10
30	196	96	37	11	---	159	48	9.6	3.6	1.0	.68	8.3
31	403	---	35	12	---	141	---	9.6	---	.86	.86	---
TOTAL	20981	3279	6869	555	1241	12069	11329	756.8	183.0	49.52	24.99	154.68
MEAN	677	109	222	17.9	44.3	389	378	24.3	6.10	1.60	.81	5.16
MAX	9040	418	1660	30	264	2610	5100	43	16	3.2	1.1	28
MIN	67	42	35	11	12	128	48	9.6	3.6	.86	.61	.68
CFSM	3.22	.52	1.06	.09	.21	1.85	1.80	.12	.03	.008	.004	.03
IN.	3.72	.58	1.22	.10	.22	2.14	2.01	.13	.03	.01	.00	.03

CAL YR 1976 TOTAL 60958.60 MEAN 167 MAX 9040 MIN 1.5 CFSM .80 IN 10.80
WTR YR 1977 TOTAL 57689.99 MEAN 158 MAX 9040 MIN .61 CFSM .75 IN 10.18

01632900 SMITH CREEK NEAR NEW MARKET, VA

LOCATION.--38°41'36", long 78°38'35", Shenandoah County, Hydrologic Unit 02070006, on left bank 25 ft (8 m) upstream from bridge on State Highway 616, 3.6 mi (5.8 km) north of New Market, and 4.4 mi (7.1 km) upstream from mouth.

DRAINAGE AREA.--93.2 mi² (241.4 km²).

PERIOD OF RECORD.--August 1960 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 881.50 ft (268.681 m) above mean sea level. Prior to Aug. 2, 1963, on right bank a short distance downstream, at datum 0.71 ft (0.216 m) higher.

REMARKS.--Records good except those for January and February, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--17 years, 67.8 ft³/s (1.920 m³/s), 9.88 in/yr (251 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,600 ft³/s (300 m³/s) Oct. 6, 1972, gage height, 16.38 ft (4.993 m), from rating curve extended above 2,300 ft³/s (65 m³/s) on basis of contracted-opening measurement of peak flow; minimum, 6.1 ft³/s (0.17 m³/s) Aug. 3, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 1, 1959, reached a stage of 10.7 ft (3.26 m), discharge not determined, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 650 ft³/s (18 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1600	*4760	135	11.90	3.627	Dec. 7	1500	720	20.4	5.86	1.786

Minimum discharge, 6.1 ft³/s (0.17 m³/s) Aug. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79	138	68	56	17	35	43	36	23	12	7.9	17
2	122	118	63	54	18	33	43	34	21	12	6.7	9.7
3	276	110	61	54	19	32	43	34	20	12	7.0	10
4	97	103	58	52	20	32	102	38	19	12	12	12
5	78	97	57	50	22	34	414	36	19	11	8.6	8.8
6	57	92	56	50	22	32	192	32	19	11	7.6	8.8
7	51	88	414	49	21	32	133	34	19	11	9.2	8.8
8	54	84	224	44	20	31	112	33	18	11	8.6	9.2
9	2210	80	143	39	21	30	96	30	19	11	8.6	9.2
10	427	78	119	37	22	29	87	28	20	11	30	9.7
11	205	75	111	32	24	29	81	28	19	15	14	9.7
12	155	75	109	27	26	29	76	28	18	12	12	8.8
13	134	73	99	26	28	83	71	26	18	12	11	7.9
14	119	70	88	24	27	103	68	27	19	9.2	12	7.9
15	109	69	86	25	26	71	65	26	20	8.6	12	7.9
16	99	66	85	24	24	60	61	24	18	8.8	12	8.6
17	96	63	82	22	24	54	58	24	19	9.2	13	9.7
18	93	62	77	21	27	51	56	23	23	7.9	12	9.2
19	83	62	74	20	32	49	54	23	19	7.6	10	7.9
20	116	60	73	19	32	46	59	23	17	8.8	9.2	12
21	192	60	71	18	29	44	51	22	16	8.4	9.2	9.2
22	126	58	66	17	29	60	48	22	15	10	9.2	8.6
23	107	56	65	17	28	77	45	21	14	8.8	8.8	7.0
24	101	55	65	17	33	62	44	21	14	8.6	12	6.7
25	104	55	61	18	45	57	43	21	21	11	14	7.6
26	227	54	62	19	40	53	41	21	21	13	12	11
27	155	54	61	19	38	52	40	20	16	7.0	10	11
28	130	54	60	18	38	52	38	20	14	7.0	9.7	10
29	110	74	58	17	---	51	39	20	13	7.9	9.2	8.8
30	110	81	55	16	---	48	37	23	13	7.6	9.2	8.8
31	161	---	53	16	---	45	---	25	---	8.8	14	---
TOTAL	6187	2264	2824	917	752	1496	2340	823	544	310.4	346.9	280.9
MEAN	200	75.5	91.1	29.6	26.9	48.3	78.0	26.5	18.1	10.0	11.2	9.36
MAX	2210	138	414	56	45	103	414	38	23	15	30	17
MIN	51	54	53	16	17	29	37	20	13	7.0	6.7	6.7
CFSM	2.15	.81	.98	.32	.29	.52	.84	.28	.19	.11	.12	.10
IN.	2.47	.90	1.13	.37	.30	.60	.93	.33	.22	.12	.14	.11

CAL YR 1976 TOTAL 24762.3 MEAN 67.6 MAX 2210 MIN 7.4 CFSM .73 IN 9.88
WTR YR 1977 TOTAL 19084.2 MEAN 52.3 MAX 2210 MIN 6.7 CFSM .56 IN 7.62

01633000 NORTH FORK SHENANDOAH RIVER AT MOUNT JACKSON, VA

LOCATION.--Lat 38°44'43", long 78°38'21", Shenandoah County, Hydrologic Unit 02070006, on right bank at downstream side of bridge on State Highway 698 at Mount Jackson and 0.3 mi (0.5 km) downstream from Mill Creek. Prior to July 1, 1976, at site near center of span of bridge.

DRAINAGE AREA.--506 mi² (1,311 km²).

PERIOD OF RECORD.--October 1943 to current year.

REVISED RECORDS.--WSP 1382: 1945, 1948-50(M), 1951-53(P), 1954(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 838.55 ft (255.590 m) above mean sea level. Prior to July 1, 1976, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period of no gage-height record, Dec. 31 to Feb. 8, which are fair. Some diversion during low flow by irrigation at points above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--34 years, 370 ft³/s (10.48 m³/s), 9.93 in/yr (252 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,500 ft³/s (1,150 m³/s) Oct. 6, 1972, gage height, 18.10 ft (5.517 m), from rating curve extended above 18,000 ft³/s (510 m³/s) on basis of peak runoff for flood in October 1942 for stations at Cootes Store and near Strasburg; minimum observed, 7.0 ft³/s (0.20 m³/s) Sept. 3, 1966, gage height, 1.97 ft (0.600 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1942 reached a stage of 20.2 ft (6.16 m), from floodmarks, discharge, about 80,000 ft³/s (2,300 m³/s), from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,000 ft³/s (140 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1700	*20700	586	16.00	4.877	Apr. 5	0830	8720	247	11.67	3.557

Minimum discharge, 10 ft³/s (0.28 m³/s) July 29, gage height, 2.00 ft (0.610 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	592	893	272	200	80	272	252	147	66	36	28	75
2	764	757	268	190	76	748	233	140	61	33	29	65
3	2520	695	256	180	82	222	225	136	59	31	17	36
4	1100	590	244	170	84	214	392	140	54	31	38	39
5	618	527	236	170	86	418	5670	147	54	30	37	34
6	418	465	229	180	84	460	2390	136	56	28	26	36
7	364	422	2230	170	82	404	1300	136	52	28	21	36
8	283	386	2070	155	86	350	951	136	50	26	20	30
9	11500	359	1160	140	96	302	731	124	56	23	16	31
10	4060	341	836	130	97	268	605	114	59	23	48	31
11	1570	319	680	125	95	244	536	108	56	31	36	31
12	980	314	605	122	90	225	465	108	52	36	27	28
13	757	302	546	116	102	1680	418	105	50	50	30	27
14	630	280	465	113	99	2230	382	108	52	38	36	27
15	527	268	427	110	97	1070	356	99	59	28	36	30
16	460	256	413	120	96	757	328	94	57	26	34	30
17	418	248	390	114	98	566	305	88	56	23	43	31
18	382	240	359	108	100	469	280	83	78	20	41	33
19	336	240	332	96	100	455	264	83	66	18	33	33
20	424	233	319	90	110	390	244	80	52	20	28	41
21	1060	229	300	86	120	350	240	78	47	20	27	39
22	838	225	256	83	115	438	225	73	45	20	26	34
23	655	218	268	82	110	864	210	73	41	19	26	30
24	571	210	240	80	97	731	203	68	41	17	33	27
25	546	207	225	81	290	590	199	70	50	26	68	28
26	838	203	240	80	366	488	192	75	75	36	45	82
27	836	199	229	80	328	413	181	70	56	26	35	61
28	705	199	218	86	306	372	178	66	47	18	33	56
29	605	240	214	90	---	350	174	66	41	15	33	41
30	546	306	187	82	---	314	160	70	38	19	33	36
31	809	---	185	80	---	280	---	70	---	26	62	---
TOTAL	36708	10331	14905	3699	3573	16426	18307	3091	1614	807	987	1128
MEAN	1184	344	481	119	128	530	610	99.7	53.8	26.0	31.8	37.6
MAX	11500	893	2230	200	366	2230	5670	147	78	50	68	82
MIN	283	199	185	80	76	214	160	66	38	15	16	27
CFSM	2.34	.68	.95	.24	.25	1.05	1.21	.20	.11	.05	.06	.07
IN.	2.70	.76	1.10	.27	.26	1.21	1.35	.23	.12	.06	.07	.08

CAL YR 1976 TOTAL 133739 MEAN 365 MAX 11500 MIN 22 CFSM .72 IN 9.83
WTR YR 1977 TOTAL 111576 MEAN 306 MAX 11500 MIN 19 CFSM .61 IN 8.20

01634000 NORTH FORK SHENANDOAH RIVER NEAR STRASBURG, VA

LOCATION.--Lat 38°58'36", long 78°20'11", Warren County, Hydrologic Unit 02070006, on right bank at downstream side of bridge on State Highway 55, 1.5 mi (2.4 km) southeast of Strasburg, 2.2 mi (3.5 km) upstream from Cedar Creek, and 10 mi (16 km) upstream from confluence with South Fork.

DRAINAGE AREA.--768 mi² (1,989 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1925 to current year.

REVISED RECORDS.--WSP 951: 1936(M). WSP 1001: 1931. WSP 1171: 1929(M), 1933(M), 1936-37. WSP 1302: 1928(M), 1930(M). WSP 2105: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 494.03 ft (150.580 m) above mean sea level. Prior to Sept. 21, 1930, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter periods, which are fair. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--52 years, 570 ft³/s (16.14 m³/s), 10.08 in/yr (256 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 100,000 ft³/s (2,830 m³/s) Oct. 16, 1942, gage height, 31.2 ft (9.51 m), from high-water mark in well, from rating curve extended above 46,000 ft³/s (1,300 m³/s); minimum, 6.0 ft³/s (0.17 m³/s) Feb. 9, 1934, gage height, 1.52 ft (0.463 m); minimum daily, 41 ft³/s (1.16 m³/s) Sept. 26, Oct. 1, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, that of Oct. 16, 1942.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,000 ft³/s (170 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 10	0915	*21800	617	19.33	5.892	Apr. 5	2330	10000	283	12.17	3.709

Minimum discharge, 57 ft³/s (1.61 m³/s) July 23, 24, gage height, 1.67 ft (0.509 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	221	1210	399	310	200	414	443	280	133	92	71	95
2	835	1160	375	325	210	380	414	267	132	87	71	80
3	1060	975	364	350	225	360	395	258	126	84	72	111
4	2680	862	357	320	230	330	445	252	119	80	79	103
5	1220	775	354	300	205	321	4210	247	114	81	73	93
6	746	691	348	280	210	481	6020	258	110	80	73	83
7	945	624	528	265	225	571	2570	258	112	80	77	92
8	662	575	3390	280	220	512	1700	255	111	76	76	89
9	5700	529	2060	250	218	458	1320	247	121	76	70	77
10	15500	490	1350	250	215	412	1060	230	121	77	67	70
11	3380	476	1040	230	205	377	901	213	118	76	77	76
12	1860	458	887	220	200	354	798	205	121	77	75	75
13	1310	443	802	215	198	531	708	201	121	76	78	73
14	1010	427	708	220	205	3100	642	198	119	79	76	72
15	818	403	625	250	220	2130	593	194	119	80	73	72
16	697	387	585	270	225	1390	556	192	120	88	73	70
17	620	374	560	280	210	957	516	186	118	80	74	71
18	586	360	537	193	190	798	483	175	116	73	72	70
19	523	351	503	190	188	664	455	174	111	72	72	74
20	532	346	470	180	185	635	432	167	124	73	71	93
21	877	336	452	182	245	562	420	162	121	71	71	82
22	1370	330	431	189	250	686	392	157	108	66	75	79
23	1050	321	384	187	197	932	369	151	103	64	67	78
24	863	310	380	190	183	1200	352	147	99	64	70	79
25	807	304	365	205	193	979	340	145	100	72	72	76
26	957	298	357	192	315	806	327	141	104	77	71	87
27	1320	295	356	190	484	684	314	139	100	71	76	190
28	1130	292	349	197	443	614	306	137	120	73	79	175
29	944	309	332	205	---	571	306	134	107	75	80	120
30	826	326	325	225	---	531	298	131	95	75	89	111
31	851	---	315	195	---	494	---	129	---	72	77	---
TOTAL	51960	15025	20288	7247	6502	23621	28077	6030	3453	2367	2295	2734
MEAN	1676	501	654	234	232	763	936	195	115	76.4	74.0	91.1
MAX	15500	1210	3390	350	484	3100	6020	280	133	92	89	190
MIN	221	292	315	180	183	321	298	129	95	64	67	70
CFSM	2.18	.65	.85	.31	.30	.97	1.22	.25	.15	.10	.10	.12
IN.	2.52	.73	.98	.35	.31	1.12	1.36	.29	.17	.11	.11	.13

CAL YR 1976 TOTAL 205050 MEAN 562 MAX 15500 MIN 92 CFSM .73 IN 9.97
WTR YR 1977 TOTAL 168999 MEAN 463 MAX 15500 MIN 64 CFSM .60 IN 8.19

01634000 NORTH FORK SHENANDOAH RIVER NEAR STRASBURG, VA.--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1930, 1949, 1952, 1956, 1970 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1955 to September 1956.
WATER TEMPERATURES: October 1948 to September 1949, October 1955 to September 1956.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
OCT												
26...	0945	918	290	140	31	41	9.9	4.7	2.2	137	21	7.0
DEC												
10...	1145	1340	168	80	23	23	5.5	3.5	1.8	70	14	4.6
FEB												
02...	0945	210	420	210	18	53	18	14	1.9	230	17	19
MAR												
11...	1130	378	225	110	16	29	8.3	5.8	1.4	110	14	8.3
JUL												
01...	1115	93	375	160	15	34	19	16	2.5	180	17	24
AUG												
24...	1145	68	393	170	18	35	19	20	2.6	180	19	28

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED NITRATE (N) (MG/L)	DISSOLVED NITRATE (NO3) (MG/L)	DISSOLVED NITRITE (N) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO PHOSPHATE (PO4) (MG/L)	DISSOLVED IRON (FE) (UG/L)
OCT											
26...	.1	6.8	174	168	1.7	7.5	.00	1.7	.05	.15	10
DEC											
10...	.2	5.0	99	97	1.0	4.4	.00	1.0	.02	.06	20
FEB											
02...	.1	.2	265	244	1.5	6.9	.05	1.6	.02	.06	10
MAR											
11...	.0	.1	116	123	.41	1.8	.00	.41	.02	.06	20
JUL											
01...	.1	2.4	207	204	.00	.00	.00	.00	.00	.00	10
AUG											
24...	.1	.1	218	213	.01	.00	.00	.01	.00	.00	20

01634500 CEDAR CREEK NEAR WINCHESTER, VA

LOCATION.--Lat 39°04'52", long 78°19'47", Frederick County, Hydrologic Unit 02070006, on left bank 0.2 mi (0.3 km) upstream from Fawcett Run, 0.3 mi (0.5 km) upstream from bridge on State Highway 628, 1.3 mi (2.1 km) downstream from Froman Run, and 11.4 mi (18.3 km) southwest of Winchester.

DRAINAGE AREA.--103 mi^2 (267 km^2).

PERIOD OF RECORD.--June 1937 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 647.09 ft (197.233 m) above mean sea level.

REMARKS.--Records good except those for January and February, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--40 years, 87.7 ft^3/s (2.484 m^3/s), 11.56 in/yr (294 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 ft^3/s (623 m^3/s) Oct. 15, 1942, gage height, 27.0 ft (8.23 m), from floodmarks, from rating curve extended above 15,000 ft^3/s (420 m^3/s); minimum, 1.8 ft^3/s (0.051 m^3/s) Feb. 19, 1941, Dec. 7, 1958, result of freezeups; minimum daily, 2.8 ft^3/s (0.079 m^3/s) Sept. 7, 1964, Sept. 3, 4, 7, 8, 1966; minimum gage height, 1.04 ft (0.317 m) Feb. 19, 1941.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 17, 1936, reached a stage of about 25 ft (7.6 m), discharge, about 18,000 ft^3/s (510 m^3/s), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft^3/s (28 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 9	1200	*10000	283	17.00	5.182	Apr. 5	0430	4160	118	10.17	3.100
Mar. 13	1200	2720	77.0	7.84	2.390						

Minimum discharge, 4.8 ft^3/s (0.14 m^3/s) Aug. 21, gage height, 1.14 ft (0.347 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	124	175	34	43	25	47	90	39	15	8.0	5.8	9.6
2	140	139	40	40	26	42	106	37	14	8.0	5.4	7.2
3	492	126	35	40	28	38	126	36	12	7.2	5.4	12
4	171	114	40	40	29	47	245	36	11	7.2	5.4	9.6
5	100	100	41	40	29	84	2180	37	10	8.0	5.6	7.6
6	72	90	44	40	28	73	588	36	12	8.0	5.4	6.8
7	57	82	252	39	27	65	368	36	13	7.6	5.2	6.0
8	76	75	225	38	25	59	280	41	12	7.2	5.2	6.0
9	4150	69	139	36	26	56	214	34	15	8.0	5.2	6.8
10	788	66	112	35	31	53	143	34	19	9.2	5.4	7.6
11	334	63	103	34	40	49	157	33	15	10	5.2	7.2
12	212	61	96	33	52	47	139	33	13	12	6.0	5.8
13	157	59	86	32	70	1250	126	31	12	18	6.4	5.6
14	122	56	70	31	56	676	112	29	12	12	8.0	5.6
15	101	53	70	32	45	354	101	26	14	9.2	9.2	5.8
16	84	50	69	31	41	242	96	24	14	8.0	8.4	6.4
17	75	48	66	29	37	180	88	22	13	7.6	7.2	7.2
18	68	47	61	28	40	159	80	21	12	6.8	6.8	7.2
19	58	45	56	27	43	143	75	21	12	6.8	5.8	7.6
20	124	41	56	26	41	124	70	20	12	8.0	5.2	19
21	253	42	53	26	40	120	65	18	14	7.2	5.2	12
22	150	40	45	25	41	259	61	18	12	7.6	5.4	8.0
23	116	37	57	24	43	274	56	17	10	5.6	5.8	7.2
24	132	36	52	24	46	197	56	16	9.6	5.6	5.8	7.2
25	230	36	53	25	76	159	54	16	10	6.4	7.2	7.6
26	572	35	52	26	56	137	50	17	12	12	6.4	17
27	277	36	48	26	53	118	47	16	12	10	5.6	17
28	204	35	47	25	53	132	45	14	9.6	7.6	5.4	11
29	162	48	47	24	---	137	48	14	9.2	6.8	5.2	9.6
30	135	46	46	23	---	112	44	14	8.0	6.8	15	8.0
31	228	---	45	24	---	103	---	14	---	6.4	20	---
TOTAL	9964	1950	2240	966	1147	5536	5950	800	368.4	258.8	204.2	261.2
MEAN	321	65.0	72.3	31.2	41.0	179	198	25.8	12.3	8.35	6.75	8.71
MAX	4150	175	252	43	76	1250	2180	41	19	18	20	19
MIN	57	35	34	23	25	38	44	14	8.0	5.6	5.2	5.6
CFSM	3.12	.63	.70	.30	.40	1.74	1.92	.25	.12	.08	.07	.09
IN.	3.60	.70	.81	.35	.41	2.00	2.15	.29	.13	.09	.08	.09

CAL YR 1976 TOTAL 34121.0 MEAN 93.2 MAX 4150 MIN 8.4 CFSM .91 IN 12.32
WTR YR 1977 TOTAL 29650.6 MEAN 81.2 MAX 4150 MIN 5.2 CFSM .79 IN 10.71

01635500 PASSAGE CREEK NEAR BUCKTON, VA

LOCATION.--Lat 38°57'29", long 78°16'01", Warren County, Hydrologic Unit 02070006, on right bank 350 ft (107 m) upstream from bridge on State Highway 55, 1.2 mi (1.9 km) south of Buckton railroad station, 1.4 mi (2.3 km) upstream from mouth, and 4.2 mi (6.8 km) west of Riverton.

DRAINAGE AREA.--87.8 mi² (227.4 km²).

PERIOD OF RECORD.--October 1905 to July 1906 (gage heights only), April 1932 to current year. Prior to October 1966, published as "at Buckton."

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 525.14 ft (160.063 m) above mean sea level. October 1905 to July 1906, nonrecording gage at site 1 mi (1.6 km) downstream at different datum. Apr. 4, 1932, to Oct. 7, 1937, nonrecording gage at site 350 ft (107 m) downstream at different datum.

REMARKS.--Records good except those for January and February, which are fair. Occasional diurnal fluctuation during low flow caused by State Fish Hatchery 2 mi (3 km) above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--45 years, 67.0 ft³/s (1.897 m³/s), 10.36 in/yr (263 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,000 ft³/s (595 m³/s) Oct. 15, 1942, gage height, 15.5 ft (4.72 m), from high-water mark in well, from rating curve extended above 5,200 ft³/s (150 m³/s); minimum observed, 0.1 ft³/s (0.003 m³/s) Aug. 5, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1900	*3320	94.0	9.21	2.807	Apr. 5	0930	2290	64.9	8.00	2.438

Minimum discharge, 1.1 ft³/s (0.031 m³/s) July 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67	137	28	19	14	27	72	28	8.0	1.9	2.1	17
2	88	100	32	19	14	24	71	26	8.0	1.8	2.4	12
3	239	88	28	18	15	22	72	27	6.7	2.0	2.3	8.3
4	69	78	26	18	16	23	175	26	5.4	1.7	2.0	8.4
5	34	67	23	17	15	35	1640	25	5.0	3.2	1.6	6.0
6	22	58	22	17	14	34	480	28	5.4	2.1	1.7	4.8
7	17	53	376	16	13	30	279	26	5.6	2.7	2.0	4.6
8	22	47	304	15	12	27	218	38	6.0	2.3	2.0	3.6
9	1820	43	159	14	12	24	173	27	7.1	1.6	1.9	3.8
10	542	40	120	14	14	23	149	21	10	2.0	1.7	3.6
11	159	39	109	14	21	23	132	19	9.4	4.8	2.4	3.6
12	102	37	104	14	32	22	118	17	7.1	3.4	4.6	3.5
13	74	35	94	15	43	284	107	16	6.2	2.1	3.0	3.0
14	57	32	74	16	35	251	98	14	6.0	2.0	3.2	2.7
15	46	31	72	17	28	144	88	14	6.5	2.0	4.9	2.5
16	38	30	72	16	24	114	78	13	7.3	2.0	5.0	2.2
17	33	28	67	15	23	92	71	12	7.1	1.6	3.5	2.5
18	32	27	58	14	22	90	65	12	6.2	1.7	3.0	2.7
19	27	25	52	14	22	90	60	13	5.6	1.5	3.8	4.9
20	58	23	52	14	24	76	53	13	6.2	1.4	2.8	13
21	195	23	53	13	22	76	49	11	5.2	1.2	2.4	12
22	100	22	34	13	22	276	44	10	4.6	1.4	2.7	6.9
23	69	21	32	14	25	304	40	10	3.8	1.4	2.0	4.6
24	63	20	30	14	27	176	38	10	4.8	1.3	2.2	3.6
25	92	19	32	14	42	137	37	9.1	3.3	1.6	2.2	3.3
26	215	19	32	14	34	118	34	8.6	4.2	2.0	3.5	4.2
27	144	19	30	14	32	104	31	7.6	6.0	2.5	3.8	5.4
28	102	20	31	15	31	107	29	7.1	6.2	2.1	2.5	7.6
29	84	31	26	14	---	109	33	6.5	4.8	1.9	2.0	5.6
30	74	46	21	13	---	94	32	6.2	2.7	2.4	4.4	4.6
31	176	---	20	13	---	84	---	6.2	---	2.1	3.8	---
TOTAL	4860	1258	2213	467	648	3040	4566	507.3	180.4	63.7	87.4	170.5
MEAN	157	41.9	71.4	15.1	23.1	98.1	152	16.4	6.01	2.05	2.82	5.68
MAX	1820	137	376	19	43	304	1640	38	10	4.8	5.0	17
MIN	17	19	20	13	12	22	29	6.2	2.7	1.2	1.6	2.2
CFSM	1.79	.48	.81	.17	.26	1.12	1.73	.19	.07	.02	.03	.07
IN.	2.06	.53	.94	.20	.27	1.29	1.93	.21	.08	.03	.04	.07

CAL YR 1976 TOTAL 23248.8 MEAN 63.5 MAX 1890 MIN 2.5 CFSM .72 IN 9.85
WTR YR 1977 TOTAL 18061.3 MEAN 49.5 MAX 1820 MIN 1.2 CFSM .56 IN 7.65

01636210 HAPPY CREEK AT FRONT ROYAL, VA

LOCATION.--Lat 38°54'20", long 78°11'10", Warren County, Hydrologic Unit 02070005, on left bank 30 ft (9 m) upstream from highway bridge, 1.0 mi (1.6 km) south of Front Royal, 2.3 mi (3.7 km) upstream from Leach Run, and 2.9 mi (4.7 km) upstream from mouth.

DRAINAGE AREA.--14.0 mi² (36.3 km²).

PERIOD OF RECORD.--June 1948 to September 1977 (discontinued).

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 610.12 ft (185.965 m) above mean sea level. Prior to Oct. 1, 1949, nonrecording gage at site 0.3 mi (0.5 km) downstream at different datum.

REMARKS.--Records good except those for January and February, which are fair. Some diversion above station for Front Royal municipal water supply. Moderate diurnal fluctuation caused by municipal reservoir operation. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--29 years, 14.0 ft³/s (0.396 m³/s), 13.58 in/yr (345 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 2,490 ft³/s (70.5 m³/s) Oct. 5, 1943, gage height, 6.40 ft (1.951 m), site and datum then in use, from rating curve extended above 120 ft³/s (3.4 m³/s); maximum gage height, 6.43 ft (1.960 m) Oct. 9, 1976; no flow during several periods between Aug. 25 and Sept. 4, 1953.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1942 reached a stage of about 14 ft (4.3 m), site and datum in use 1948-49, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,730 ft³/s (49.0 m³/s) Oct. 9, gage height, 6.43 ft (1.960 m); minimum, 0.11 ft³/s (0.003 m³/s) July 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	22	8.8	7.0	4.0	6.4	14	7.3	2.9	.55	.55	.73
2	159	19	8.4	6.8	4.0	6.2	14	7.7	2.3	.47	.47	.47
3	129	18	8.0	6.2	4.3	5.8	13	7.7	2.0	.47	.32	4.3
4	55	17	8.4	6.2	4.7	10	31	7.3	1.6	.32	.64	2.0
5	30	15	7.7	6.6	4.8	20	103	9.2	1.7	.39	.47	1.1
6	18	14	7.7	6.0	4.5	15	69	8.0	2.4	.39	.26	.64
7	14	13	50	5.8	4.0	12	55	11	2.6	.20	.26	.91
8	22	13	48	5.6	3.8	11	47	9.6	2.0	.20	.26	.82
9	419	13	28	5.2	3.7	8.8	35	7.3	4.6	.26	.39	.73
10	111	13	23	5.0	5.0	7.5	29	7.0	3.6	.32	.32	2.0
11	65	11	21	4.7	8.0	7.0	24	6.2	2.3	.39	.55	.82
12	45	12	19	4.4	7.0	7.0	21	5.5	2.1	.91	.55	.55
13	34	11	16	4.2	6.4	60	19	4.8	1.8	.73	.55	.55
14	26	10	14	4.2	5.8	48	17	4.8	2.3	.73	1.7	.64
15	22	10	13	4.4	5.4	41	16	4.6	2.9	.32	1.8	.73
16	18	9.6	13	4.3	5.2	33	15	4.3	2.3	.26	2.3	.64
17	18	9.2	12	4.2	5.0	25	14	3.8	1.8	.32	1.0	.73
18	15	9.2	11	4.1	5.2	23	13	4.3	1.4	.55	1.0	.64
19	13	9.2	10	4.0	5.6	19	12	5.5	1.4	.82	.91	1.1
20	33	8.8	10	4.0	5.9	18	11	4.3	1.0	1.7	.73	5.5
21	35	8.4	10	4.0	5.4	15	10	3.6	1.4	1.3	.82	1.8
22	26	8.4	11	4.0	5.8	45	10	3.8	.91	.64	.64	.82
23	21	8.0	9.6	4.0	6.4	46	9.6	3.4	1.0	.73	.64	.64
24	22	7.7	9.6	4.0	7.0	37	9.6	3.1	.82	.47	1.8	.82
25	24	7.7	8.8	4.1	7.6	30	11	3.4	1.1	1.4	2.3	.73
26	35	7.7	10	4.2	7.2	25	11	3.8	1.7	1.8	.91	2.4
27	31	7.7	8.4	4.3	7.0	22	9.2	2.9	.91	.64	.55	2.1
28	26	7.7	8.4	4.2	6.6	23	8.8	2.4	.73	.64	.64	2.4
29	23	15	8.0	4.1	---	19	9.6	2.4	.73	.73	.55	1.3
30	21	9.6	8.0	4.0	---	17	8.0	2.3	.47	.55	.64	.91
31	28	---	7.0	4.0	---	15	---	3.1	---	.73	.64	---
TOTAL	1611	344.9	435.8	147.8	155.3	677.7	668.8	164.4	54.77	19.93	25.16	39.52
MEAN	52.0	11.5	14.1	4.77	5.55	21.9	22.3	5.30	1.83	.64	.81	1.32
MAX	419	22	50	7.0	8.0	60	103	11	4.6	1.8	2.3	5.5
MIN	13	7.7	7.0	4.0	3.7	5.8	8.0	2.3	.47	.20	.26	.47
(*)	.75	.70	.71	.67	.64	.62	.67	.61	.49	.35	.22	.37
MEAN‡	52.8	12.1	14.8	5.44	6.19	22.5	23.0	5.91	2.32	.99	1.03	1.69
CFSM‡	3.77	.87	1.06	.39	.44	1.61	1.64	.42	.17	.07	.07	.12
IN‡	4.35	.97	1.22	.45	.46	1.86	1.83	.48	.19	.08	.08	.13

CAL YR 1976 TOTAL 5226.23 MEAN 14.3 MAX 419 MIN .14 MEAN‡ 15.0 CFSM‡ 1.07 IN‡ 14.59
WTR YR 1977 TOTAL 4345.08 MEAN 11.9 MAX 419 MIN .20 MEAN‡ 12.5 CFSM‡ .89 IN‡ 12.12

* Diversion, in cubic feet per second, by Town of Front Royal.
‡ Adjusted for diversion.

01636500 SHENANDOAH RIVER AT MILLVILLE, WV

LOCATION.--Lat 39°16'55", long 77°47'22", Jefferson County, Hydrologic Unit 02070007, on left bank 0.4 mi (0.6 km) downstream from Cattail Run, 1.0 mi (1.6 km) upstream from Millville, 5.0 mi (8.0 km) upstream from Harpers Ferry, and at mile 5.0 (8.0 km).

DRAINAGE AREA.--3,040 mi^2 (7,874 km^2).

PERIOD OF RECORD.--April 1895 to March 1909, August 1928 to current year.

REVISED RECORDS.--WSP 951: 1936(M). WSP 1432: Drainage area at former site. 1895-99, 1901-2, 1905, 1907-8, 1932(M), 1935(M).

GAGE.--Water-stage recorder. Datum of gage is 293.00 ft (89.306 m) above mean sea level, adjustment of 1912. Apr. 15, 1895, to Mar. 31, 1909, nonrecording gage at site 0.8 mi (1.3 km) downstream at datum 0.32 ft (0.098 m) higher.

REMARKS.--Records good except those for winter periods, which are poor. Regulation by hydroelectric plants, particularly that of Potomac Light and Power Co., 0.5 mi (0.8 km) upstream from station. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--62 years (water years 1896-1908, 1929-77), 2,648 ft^3/s (74.99 m^3/s), 11.83 in/yr (300 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 230,000 ft^3/s (6,510 m^3/s) Oct. 16, 1942, gage height, 32.4 ft (9.88 m), from floodmarks; minimum, about 59 ft^3/s (1.67 m^3/s) Oct. 4, 1930, gage height, 0.39 ft (0.119 m); minimum daily, 194 ft^3/s (5.49 m^3/s) July 24, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1870 reached practically same stage as flood of Mar. 18, 1936, 26.36 ft (8.035 m), discharge, 151,000 ft^3/s (4,280 m^3/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 15,000 ft^3/s (420 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 11	0115	*49400	1400	15.30	4.663	Apr. 6	2015	18800	532	9.45	2.880

Minimum discharge, 224 ft^3/s (6.34 m^3/s) Sept. 13, 16, gage height, 0.88 ft (0.268 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1110	4410	1630	1000	900	1510	2320	1410	731	591	422	487
2	1760	4870	2100	810	870	1530	2260	1400	779	487	393	481
3	4450	4580	2050	910	840	1450	2140	1410	787	439	370	544
4	6400	4130	1850	1100	870	1460	2150	1310	707	457	370	469
5	5270	3720	1780	1000	900	1470	7200	1260	670	463	365	524
6	3340	3360	1690	1000	700	1510	16600	1290	723	393	387	584
7	2420	3040	2640	1100	770	1630	14600	1340	677	463	399	544
8	2060	2800	4770	1000	760	2240	9310	1410	647	439	387	451
9	10600	2560	9970	1100	800	2220	6830	1330	677	404	387	499
10	36300	2420	7040	1200	860	2010	5580	1230	715	410	399	544
11	31200	2320	5360	1100	1000	1870	4720	1130	723	422	410	524
12	11300	2180	4550	1000	1100	1750	4070	1040	685	451	404	457
13	7240	2140	4110	1000	1500	1960	3600	1040	647	518	544	416
14	5500	2060	3780	1100	1600	5350	3220	1030	640	451	399	445
15	4430	2010	3250	1100	1350	10200	2920	1020	640	451	422	410
16	3600	1960	3080	1000	1400	7460	2690	987	640	457	422	410
17	3040	1860	2900	900	1270	5480	2530	951	633	445	451	428
18	2740	1850	2800	1000	1170	4410	2350	909	763	416	422	410
19	2500	1680	2650	1000	1080	3690	2240	934	755	416	463	387
20	2580	1690	2490	1100	1120	3170	2100	909	685	524	626	422
21	3040	1670	2360	1100	1070	2930	2010	867	670	416	499	662
22	4300	1620	2220	1000	943	2860	1950	827	647	428	410	647
23	4580	1570	2090	1000	1010	4110	1840	843	591	381	428	511
24	4340	1540	2040	1000	1050	4340	1790	795	570	365	416	481
25	3980	1510	1820	1200	1080	4470	1620	811	570	354	416	457
26	4410	1470	1850	1100	1110	4000	1660	811	557	404	393	505
27	6040	1440	1800	1200	1210	3480	1600	723	550	469	422	475
28	6770	1440	1780	1100	1520	3160	1560	755	557	463	428	463
29	5360	1480	1740	950	---	2980	1510	763	577	469	463	655
30	4510	1540	1600	1000	---	2740	1480	803	598	422	511	591
31	4170	---	1500	950	---	2500	---	763	---	410	481	---
TOTAL	199[illegible]70	70920	90690	32120	29853	99940	116450	32101	19811	13678	13309	14883
MEAN	6444	2364	2925	1036	1066	3224	3882	1036	660	441	429	496
MAX	36300	4870	9970	1200	1600	10200	16600	1410	787	591	626	662
MIN	1110	1440	1500	810	700	1450	1480	723	550	354	365	387
CFSM	2.12	.78	.96	.34	.35	1.06	1.28	.34	.22	.15	.14	.16
IN.	2.44	.87	1.11	.39	.37	1.22	1.42	.39	.24	.17	.16	.18

CAL YR 1976 TOTAL 952164 MEAN 2601 MAX 36300 MIN 435 CFSM .86 IN 11.65
WTR YR 1977 TOTAL 733525 MEAN 2010 MAX 36300 MIN 354 CFSM .66 IN 8.98

01638480 CATOCTIN CREEK AT TAYLORSTOWN, VA

LOCATION.--Lat 39°15'16", long 77°34'36", Loudoun County, Hydrologic Unit 02070008, on right bank at upstream side of bridge on State Highway 663 at Taylorstown and 3.2 mi (5.1 km) downstream from Milltown Creek.

DRAINAGE AREA.--89.6 mi² (232.1 km²).

PERIOD OF RECORD.--August 1971 to current year.

GAGE.--Water-stage recorder. Datum of gage is 249.15 ft (75.941 m) above mean sea level.

REMARKS.--Records good except those for period of no gage-height record, Jan. 1 to Feb. 9, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--6 years, 112 ft³/s (3.172 m³/s), 16.98 in/yr (431 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,800 ft³/s (674 m³/s) June 22, 1972, gage height, 23.83 ft (7.263 m), from floodmarks, from rating curve extended above 7,400 ft³/s (210 m³/s) on basis of contracted-opening measurement of peak flow; minimum daily, 1.9 ft³/s (0.054 m³/s) Sept. 14-17, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,200 ft³/s (34 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 2	2230	1320	37.4	5.30	1.615	Apr. 5	0230	2880	81.6	8.32	2.536
Oct. 9	1400	*15900	450	19.92	6.072						

Minimum daily discharge, 1.9 ft³/s (0.054 m³/s) Sept. 14-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	96	180	40	29	24	43	66	46	19	15	7.4	19
2	268	141	37	32	24	38	257	44	19	12	17	18
3	477	127	34	36	25	36	240	45	16	10	9.8	8.8
4	151	124	37	38	27	49	352	45	14	9.3	7.8	5.2
5	92	109	38	36	29	106	1630	57	13	8.5	7.1	4.2
6	70	95	40	35	28	70	475	53	23	7.8	7.8	4.2
7	60	91	405	37	25	58	335	54	33	16	7.8	3.9
8	168	84	198	35	23	50	275	48	21	26	8.6	4.9
9	7040	77	104	36	23	46	225	38	29	15	6.8	5.7
10	780	77	86	37	64	43	200	34	34	14	7.1	4.6
11	298	73	82	35	290	41	178	33	25	12	24	3.9
12	215	70	86	31	230	40	155	33	20	22	11	2.9
13	172	67	84	29	120	287	136	30	18	54	9.8	2.3
14	141	62	64	32	85	238	122	29	16	19	11	1.9
15	113	62	62	34	64	148	111	28	18	12	13	1.9
16	98	60	64	33	46	115	104	26	18	9.3	10	1.9
17	86	58	64	29	38	87	91	26	64	8.5	9.3	1.9
18	84	57	58	27	37	86	84	26	178	38	12	2.4
19	72	55	54	26	36	82	78	26	35	15	8.5	3.0
20	165	54	54	26	33	72	73	26	22	111	6.4	3.9
21	300	52	62	26	33	77	68	25	56	61	5.4	3.4
22	141	52	43	26	29	324	66	22	19	22	5.2	2.8
23	109	49	55	25	33	272	62	21	16	13	4.6	2.5
24	127	48	42	26	42	168	60	21	16	10	4.4	2.3
25	232	48	43	28	89	129	61	21	15	11	4.6	2.3
26	360	48	42	29	55	109	70	23	16	16	4.6	4.9
27	195	48	42	30	52	102	58	21	15	14	4.2	8.5
28	155	49	43	29	50	113	54	19	38	9.8	4.2	7.4
29	136	62	42	27	---	127	58	18	64	7.8	3.9	5.4
30	122	62	37	25	---	93	52	17	21	7.8	3.9	4.6
31	302	---	37	24	---	78	---	18	---	8.1	4.9	---
TOTAL	12825	2241	2179	948	1654	3327	5796	973	911	614.9	252.3	148.6
MEAN	414	74.7	70.3	30.6	59.1	107	193	31.4	30.4	19.8	8.14	4.95
MAX	7040	180	405	38	290	324	1630	57	178	111	24	19
MIN	60	48	34	24	23	36	52	17	13	7.8	3.9	1.9
CFSM	4.62	.83	.79	.34	.66	1.19	2.15	.35	.34	.22	.09	.06
IN.	5.32	.93	.90	.39	.69	1.38	2.41	.40	.38	.26	.10	.06

CAL YR 1976 TOTAL 40262.5 MEAN 110 MAX 7040 MIN 5.5 CFSM 1.23 IN 16.72
WTR YR 1977 TOTAL 31869.8 MEAN 87.3 MAX 7040 MIN 1.9 CFSM .97 IN 13.23

01638500 POTOMAC RIVER AT POINT OF ROCKS, MD

LOCATION.--Lat 39°16'25", long 77°32'35", Frederick County, Hydrologic Unit 02070008, on left bank at downstream side of bridge on U.S. Highway 15 at Point of Rocks, 0.3 mi (0.5 km) downstream from Catoctin Creek (Virginia), 6 mi (9.7 km) upstream from Monocacy River, and at mile 159.5 (256.6 km).

DRAINAGE AREA.--9,651 mi² (24,996 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1895 to current year.

REVISED RECORDS.--WSP 192: 1895-1905. WSP 1432: 1899, 1901-2, 1904-5, 1912, 1914(M), 1915, 1917(M), 1918, 1919(M), 1920, 1921-23(M), 1924, 1925-28(M), 1930(M).

GAGE.--Water-stage recorder. Datum of gage is 200.54 ft (61.125 m) above mean sea level, adjustment of 1912. Prior to Oct. 28, 1929, nonrecording gage at same site. Prior to Sept. 2, 1902, at datum about 0.45 ft (0.317 m) higher.

REMARKS.--Records good. Low flow affected slightly since 1913 by Stony River Reservoir and since December 1950 by Savage River Reservoir. Low flow affected extensively at times by run-of-the-river hydroelectric plants. Gage-height telemeter at station.

AVERAGE DISCHARGE.--82 years, 9,273 ft³/s (262.6 m³/s), 13.05 in/yr (331 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 480,000 ft³/s (13,600 m³/s) Mar. 19, 1936, gage height, 41.03 ft (12.506 m), from rating curve extended above 300,000 ft³/s (8,500 m³/s) on the basis of adjustment of figure of peak flow at station near Washington for inflow and storage, and slope-area measurement of peak flow; minimum, 530 ft³/s (15.0 m³/s) Sept. 11, 12, 1966, gage height, 0.27 ft (0.082 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 2, 1889, reached a stage of 40.2 ft (12.25 m), from floodmarks, discharge, about 460,000 ft³/s (13,000 m³/s), from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 35,000 ft³/s (990 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 11	0200	*193000	5470	27.25	8.306	Apr. 6	1830	83100	2350	15.61	4.758
Mar. 15	0930	52300	1480	11.46	3.493						

Minimum discharge, 1,080 ft³/s (30.6 m³/s) Aug. 10, Sept. 14. 16, gage height, 0.68 ft (0.207 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4730	18900	5170	3000	3000	14300	13200	5390	2360	2070	1510	1490
2	25200	20900	5680	2600	2800	13000	13300	5190	2210	1910	1450	1570
3	25500	19400	5620	3000	2600	10800	20500	5080	2300	1670	1370	1520
4	29400	17000	5140	3400	2600	9390	27200	4830	2160	1570	1280	1410
5	24900	15600	4850	3200	2800	11700	36100	4760	2070	1520	1220	1350
6	15500	14100	4670	3200	2200	23300	73700	4810	2130	1450	1210	1460
7	10700	12500	6140	3400	2400	19600	68700	4900	2060	1400	1240	1410
8	9190	10900	11400	3200	2400	16000	41700	5000	2030	1250	1190	1320
9	46900	9800	23100	3400	2400	13500	30100	5220	2280	1400	1140	1310
10	154000	9050	21500	3600	2600	11500	23500	5270	2350	1330	1120	1340
11	158000	8460	16400	3400	3200	10200	19200	4970	2350	1350	1210	1370
12	58000	7980	13700	3000	3600	9170	16500	4560	2220	1430	1160	1260
13	32300	7740	12300	3200	5000	9890	14400	4300	2180	2070	1300	1180
14	23200	7400	11400	3600	5800	27100	12800	4080	2370	2350	1480	1110
15	17700	7080	10500	3400	6800	49000	11400	3880	2390	2080	1400	1110
16	14300	6760	9210	3000	6600	35100	10400	3730	2310	1960	1380	1100
17	12100	6420	8690	2800	6400	25400	9600	3510	2210	1910	1470	1130
18	10400	6420	8290	3200	5800	19300	8810	3540	2770	1850	1510	1110
19	8950	6120	8200	3200	5400	16300	8200	3410	2560	1680	1900	1110
20	8610	5780	7530	3400	4800	17000	7690	3400	2370	1920	2020	1100
21	10500	5650	6970	3400	4500	15700	7290	3250	2310	2300	1850	1190
22	17300	5470	6730	3200	4500	15700	6920	3320	2100	3820	1670	1510
23	19800	5280	5950	3200	4500	27500	6570	3340	2020	3110	1760	1320
24	16800	5160	5680	3200	4440	32200	6360	3170	1910	2510	1610	1200
25	15800	5020	5060	3600	4740	25100	6860	3020	1870	2040	1390	1170
26	21500	4870	4740	3600	12900	20100	6580	3030	1730	2000	1280	1240
27	32500	4750	4850	3800	18700	16700	6120	2660	1620	1820	1250	1260
28	30100	4700	5040	3600	15600	14500	5780	2650	1820	1760	1250	1280
29	22800	4860	5090	3000	---	15400	5640	2610	2570	1660	1210	1360
30	18100	5010	4810	3200	---	18000	5510	2520	2000	1590	1290	1550
31	16800	---	4400	3000	---	15600	---	2450	---	1590	1330	---
TOTAL	911580	269080	258810	101000	149080	578050	530630	121850	65550	58370	43450	38840
MEAN	29410	8969	8349	3258	5324	18650	17690	3931	2185	1883	1402	1295
MAX	158000	20900	23100	3800	18700	49000	73700	5390	2770	3820	2020	1570
MIN	4730	4700	4400	2600	2200	9170	5510	2450	1620	1250	1120	1100
CFSM	3.05	.93	.87	.34	.55	1.93	1.83	.41	.23	.20	.15	.13
IN.	3.51	1.04	1.00	.39	.57	2.23	2.05	.47	.25	.22	.17	.15

CAL YR 1976 TOTAL 3507260 MEAN 9583 MAX 158000 MIN 1260 CFSM .99 IN 13.52
WTR YR 1977 TOTAL 3126290 MEAN 8565 MAX 158000 MIN 1100 CFSM .89 IN 12.05

01638500 POTOMAC RIVER AT POINT OF ROCKS, MD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1961 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1960 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1960 to current year.

REMARKS.--Water temperatures are measured daily in field at time of sampling.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum daily, 33.5°C Aug. 24, 1964, July 19, 1977; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,350 mg/L Apr. 3, 1970; minimum daily mean, 1 mg/L on many days most years.
SEDIMENT LOADS: Maximum daily, 689,000 tons (625,000 tonnes) June 23, 1972; minimum daily, 2.0 tons (1.8 tonnes) on many days during 1964, 1966-69.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum daily, 33.5°C July 19; minimum daily, river was ice covered on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,140 mg/L Oct. 9; minimum daily mean, 1 mg/L Nov. 12, 13, Dec. 22-24.
SEDIMENT LOADS: Maximum daily, 253,000 tons (230,000 tonnes) Oct. 10; minimum daily, 15 tons (14 tonnes) Dec. 24.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	AIR TEMPERATURE (DEG C)	TEMPERATURE (DEG C)	WEATHER	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)
OCT									
03...	1250	24900	--	--	--	16.0	--	--	--
08...	1300	9303	250	8.0	19.5	17.0	3	10	93
11...	0545	180000	--	--	--	14.0	--	--	--
NOV									
19...	1200	4871	370	8.6	.5	4.5	3	8	160
MAR									
21...	1300	15590	215	7.8	12.5	9.5	1	9	70
MAY									
17...	1500	3740	270	8.4	--	--	--	10	130
JUN									
16...	1100	2050	418	8.4	--	22.0	--	10	140
JUL									
14...	1430	2270	385	9.2	--	29.0	--	10	170
AUG									
04...	1330	1310	--	--	26.0	28.5	--	--	--
22...	1045	1662	390	8.4	24.0	27.0	4	55	150

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)
OCT									
03...	--	--	--	--	--	--	--	--	--
08...	30	27	6.2	6.6	3.1	77	30	8.2	.1
11...	--	--	--	--	--	--	--	--	--
NOV									
19...	49	48	10	12	1.9	137	48	16	.0
MAR									
21...	33	23	4.9	5.8	1.7	54	30	7.0	.1
MAY									
17...	38	34	10	16	2.4	110	53	15	.1
JUN									
16...	59	53	12	21	2.8	150	63	21	.1
JUL									
14...	77	47	12	26	2.9	119	77	28	.1
AUG									
04...	--	--	--	--	--	--	--	--	--
22...	64	42	12	34	3.1	110	90	31	.1

01638500 POTOMAC RIVER AT POINT OF ROCKS, MD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	TOTAL IRON (FE) (UG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
OCT									
03...	--	--	--	--	--	--	--	--	--
08...	6.7	150	128	1.3	.20	2600	70	120	10
11...	--	--	--	--	--	--	--	--	--
NOV									
19...	1.1	201	205	1.2	.02	170	20	20	10
JAN									
21...	6.1	115	105	.65	.02	750	30	40	10
MAY									
17...	.2	190	165	.39	.06	530	20	60	0
JUN									
16...	4.4	272	251	.99	.12	560	50	70	20
JUL									
14...	.3	278	248	.01	.12	1000	40	110	10
AUG									
04...	--	--	--	--	--	--	--	--	--
22...	.3	293	267	.01	.12	1000	10	120	10

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM
OCT							
03...	1250	24500	16.0	126	8340	33	47
11...	0545	188000	14.0	413	210000	--	47

DATE	SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM	SUS. SED. SIEVE DIAM. % FINER THAN .125 MM	SUS. SED. SIEVE DIAM. % FINER THAN .250 MM	SUS. SED. SIEVE DIAM. % FINER THAN .500 MM
OCT							
03...	68	83	91	96	97	99	100
11...	69	80	84	90	93	96	100

01638500 POTOMAC RIVER AT POINT OF ROCKS, MD--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	9.5	1.5	---	---	7.0	15.5	---	26.5	27.5	28.0	31.0
2	16.0	9.5	4.0	---	---	7.0	13.5	19.5	22.0	27.0	29.0	31.0
3	16.0	9.0	2.5	1.0	---	8.0	---	21.0	23.0	---	28.5	29.0
4	17.0	9.0	2.5	2.0	---	7.5	11.0	18.0	24.0	---	30.5	---
5	16.0	9.0	3.0	1.0	---	9.0	11.5	21.5	---	31.0	30.5	27.0
6	17.5	9.5	3.0	---	---	8.0	9.5	21.5	22.0	33.0	30.5	29.0
7	18.0	9.5	3.0	1.0	---	7.5	10.5	20.5	20.0	28.0	---	27.0
8	18.0	7.0	2.5	---	---	9.5	10.0	---	21.0	32.0	31.5	26.5
9	17.5	6.5	3.0	---	---	10.5	10.5	17.0	18.5	---	31.0	23.0
10	15.5	7.0	3.0	---	---	11.0	---	17.0	---	---	32.0	26.0
11	14.0	6.5	3.5	---	---	13.0	14.0	18.5	23.0	27.0	32.5	---
12	14.5	6.5	4.0	---	---	12.5	16.0	---	---	27.5	29.5	23.0
13	15.5	6.5	3.0	---	---	14.0	17.5	21.5	20.5	30.5	---	24.0
14	14.5	6.5	3.0	---	---	12.0	17.5	23.0	22.5	30.5	---	22.0
15	15.5	6.5	4.5	---	---	13.0	18.0	---	24.0	31.0	28.5	20.0
16	14.5	6.5	4.0	---	---	12.0	---	23.0	27.0	---	29.5	21.0
17	13.5	7.0	4.5	---	---	---	---	25.5	27.5	---	28.5	24.0
18	13.5	7.5	4.0	---	---	10.5	20.0	25.5	---	32.5	24.5	---
19	13.0	9.5	---	---	---	---	21.0	26.0	---	33.5	---	28.0
20	12.5	7.0	5.0	---	---	---	19.5	26.0	25.5	32.0	26.5	26.0
21	11.5	7.0	---	---	---	11.0	21.0	---	27.5	32.5	---	28.0
22	11.5	5.5	---	---	---	8.5	22.0	---	25.0	30.0	27.0	27.0
23	---	5.5	3.0	---	7.0	9.5	22.5	27.0	27.0	---	---	28.0
24	10.0	4.5	1.0	---	7.0	7.0	---	26.0	26.5	---	25.0	23.0
25	11.0	7.0	1.0	---	8.0	9.0	19.5	24.0	---	27.5	24.0	---
26	11.0	7.0	2.0	---	7.5	9.5	---	27.0	---	22.5	25.0	24.0
27	10.5	7.0	1.0	---	6.5	---	19.5	28.0	30.0	27.5	27.0	21.0
28	10.0	8.0	2.0	---	6.0	10.0	18.5	---	27.0	---	---	21.0
29	10.5	6.0	2.0	---	---	13.5	18.5	---	28.5	27.0	30.0	20.0
30	9.5	3.5	1.0	---	---	14.5	---	---	29.5	---	29.0	22.0
31	10.0	---	1.0	---	---	13.5	---	22.0	---	---	30.0	---

01638500 POTOMAC RIVER AT POINT OF ROCKS, MD--Continued

SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	49	913	15	765	9	126	7	57	10	81	51	1970
2	275	18900	18	1020	10	153	6	42	10	76	38	1050
3	197	13600	14	733	8	121	6	32	10	79	22	642
4	155	12300	8	367	5	69	6	37	10	78	20	567
5	108	7260	11	463	3	39	6	35	10	76	31	1020
6	75	3140	8	305	3	38	6	52	10	50	111	7010
7	48	1390	5	169	3	50	9	83	10	65	235	12400
8	40	993	7	206	28	512	10	86	10	65	102	4410
9	1140	175000	7	185	47	1510	10	92	10	65	56	1970
10	630	253000	6	147	43	2200	10	97	10	70	43	1340
11	535	242000	3	69	28	1240	10	92	10	86	39	1070
12	210	36100	1	22	18	666	10	81	10	97	34	862
13	108	9720	1	21	12	399	10	86	10	135	52	1390
14	56	3670	2	40	11	339	10	97	10	157	142	11500
15	49	2340	2	38	6	170	10	92	10	184	429	56900
16	36	1390	3	55	4	99	10	81	10	170	260	24600
17	28	915	3	52	5	117	10	76	10	173	135	9260
18	22	618	2	35	3	67	10	86	10	157	64	3340
19	21	507	3	50	2	44	10	85	10	146	49	2160
20	25	581	4	62	2	41	10	92	10	130	41	1880
21	22	624	3	46	2	38	10	92	10	121	34	1530
22	37	1730	5	74	1	18	10	86	10	121	47	1990
23	36	1920	4	57	1	16	10	86	21	255	115	8940
24	26	1160	4	56	1	15	10	86	14	168	176	15300
25	74	3200	5	68	6	82	10	97	19	243	101	6840
26	59	3290	11	145	3	38	10	97	65	2580	66	3580
27	72	6330	5	64	5	65	10	103	83	4190	56	2530
28	58	4710	4	51	5	68	10	97	74	3120	54	2110
29	32	1970	4	52	3	41	10	81	---	---	45	1870
30	21	1030	10	135	3	39	10	86	---	---	51	2400
31	18	816	---	---	7	83	10	81	---	---	46	1940
TOTAL	---	811137	---	5552	---	8503	---	2474	---	12938	---	194371

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	37	1320	74	1080	73	465	70	391	60	245	60	241
2	135	5120	56	785	46	274	62	320	47	184	62	263
3	209	11000	65	892	45	279	57	257	44	163	55	226
4	144	10500	59	769	62	362	56	237	45	156	54	206
5	200	20000	63	810	59	330	53	218	48	158	56	204
6	426	86900	68	883	52	299	40	157	43	140	67	264
7	442	83700	80	1060	56	311	42	159	38	127	77	293
8	208	24100	80	1080	46	252	54	182	35	112	96	342
9	101	8210	75	1060	39	232	64	242	55	169	78	276
10	69	4380	66	939	34	247	73	262	93	281	56	203
11	50	2590	60	805	40	254	80	292	76	248	54	200
12	48	2140	65	800	33	198	60	232	56	175	56	191
13	51	1980	73	848	24	161	60	335	60	211	60	191
14	42	1450	70	771	23	147	61	387	72	288	70	210
15	44	1350	65	681	75	484	62	348	82	310	80	240
16	49	1380	60	604	87	543	62	320	79	294	86	255
17	54	1400	56	531	92	549	61	315	73	290	68	207
18	57	1360	48	459	91	681	59	295	72	294	71	213
19	53	1170	58	534	86	594	51	231	72	369	83	249
20	58	1200	59	542	82	525	56	290	71	387	80	238
21	56	1100	61	535	81	505	70	435	70	350	77	247
22	64	1200	64	574	95	539	142	1460	69	311	87	355
23	45	798	67	604	92	502	128	1010	68	323	86	307
24	48	824	61	522	100	516	99	671	65	283	85	275
25	64	1190	67	546	96	485	81	446	51	191	84	265
26	68	1210	72	589	86	402	88	464	61	211	83	278
27	67	1110	68	488	77	337	82	403	58	196	84	286
28	67	1050	68	487	67	329	83	394	55	186	90	311
29	97	1480	70	493	72	500	75	336	54	176	83	305
30	94	1400	72	490	68	367	69	296	55	192	87	364
31	---	---	74	490	---	---	65	279	52	187	---	---
TOTAL	---	282612	---	21751	---	11649	---	11672	---	7207	---	7705

TOTAL LOAD FOR YEAR: 1377571 TONS.

01643700 GOOSE CREEK NEAR MIDDLEBURG, VA

LOCATION.--Lat 38°59'11", long 77°47'49", Loudoun County, Hydrologic Unit 02070008, on right bank 250 ft (76 m) upstream from bridge on State Highway 611, 2.0 mi (3.2 km) downstream from Panther Skin Creek, and 3.4 mi (5.5 km) northwest of Middleburg.

DRAINAGE AREA.--123 mi² (319 km²).

PERIOD OF RECORD.--October 1965 to September 1967, July 1969 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 329.80 ft (100.523 m) above mean sea level. October 1965 to September 1967 at site 300 ft (91 m) downstream at datum 0.73 ft (0.223 m) lower.

REMARKS.--Records good except those for period of no gage-height record, Oct. 9-10, and those for January and February, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--10 years, 132 ft³/s (3.738 m³/s), 14.57 in/yr (370 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,200 ft³/s (544 m³/s) June 22, 1972, gage height, 27.46 ft (8.370 m), from floodmarks, from rating curve extended above 2,900 ft³/s (82 m³/s) on basis of slope-area measurements at gage height 14.44 ft (4.401 m) and at peak flow; minimum, 0.10 ft³/s (0.003 m³/s) Sept. 1-4, 8-12, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16,600 ft³/s (470 m³/s), time unknown, Oct. 9, gage height, 25.50 ft (7.772 m), from floodmarks, no other peak above base of 1,350 ft³/s (38 m³/s); minimum, 0.84 ft³/s (0.024 m³/s) July 8, gage height, 1.84 ft (0.561 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	226	242	79	66	45	62	115	60	25	4.2	3.2	8.1
2	292	211	79	68	45	57	129	59	23	3.6	2.5	5.0
3	525	200	74	68	46	53	136	63	17	2.5	1.8	2.8
4	205	194	84	66	50	70	174	59	14	1.8	1.8	2.5
5	137	173	88	64	56	142	768	76	14	1.6	1.8	7.6
6	103	160	79	66	52	105	500	73	15	1.5	4.8	4.2
7	88	149	462	62	47	94	375	88	20	1.3	4.6	54
8	218	140	270	59	43	85	305	107	17	1.0	2.8	16
9	7500	131	203	56	41	79	247	63	23	6.2	2.2	9.1
10	1490	129	175	58	60	73	218	55	37	11	1.6	10
11	400	123	165	56	140	68	194	52	23	111	1.5	9.5
12	300	119	171	50	115	66	171	47	17	90	1.5	5.0
13	250	118	151	50	96	378	154	43	14	80	1.5	3.6
14	214	108	123	52	84	350	142	42	14	26	2.5	2.5
15	180	107	123	58	63	258	133	40	18	16	13	1.6
16	155	102	124	56	52	205	123	37	18	10	7.2	1.5
17	140	97	119	52	47	165	115	36	15	8.6	4.2	1.6
18	150	97	107	50	45	158	108	34	16	8.1	3.2	2.2
19	133	94	100	50	49	143	103	37	19	7.2	3.2	2.5
20	423	90	103	50	49	133	97	34	14	7.6	2.5	25
21	480	88	108	52	47	126	92	32	30	12	1.8	16
22	292	86	103	50	45	325	88	29	16	8.1	1.3	6.2
23	236	80	98	50	70	305	84	27	11	6.7	1.2	3.9
24	229	78	96	52	100	267	82	29	9.5	5.0	1.2	2.8
25	275	79	94	54	123	207	84	28	9.1	3.9	3.9	2.8
26	452	79	102	56	74	181	91	31	12	9.1	4.6	40
27	315	80	92	52	74	160	76	27	11	10	2.8	23
28	270	79	91	50	73	177	70	23	8.1	5.8	1.8	12
29	238	121	88	48	---	171	73	20	6.7	3.6	1.5	10
30	216	99	80	46	---	143	64	19	5.8	3.2	16	6.2
31	362	---	81	45	---	127	---	21	---	3.2	16	---
TOTAL	16494	3653	3920	1710	1831	4910	5111	1391	492.2	475.8	118.5	297.2
MEAN	532	122	126	55.2	65.4	159	170	44.9	16.4	15.3	3.82	9.91
MAX	7500	242	462	68	140	378	768	107	37	111	16	54
MIN	88	78	74	45	41	53	64	19	5.8	1.0	1.2	1.5
CFSM	4.33	.99	1.02	.45	.53	1.29	1.38	.37	.13	.12	.03	.08
IN.	4.99	1.10	1.19	.52	.55	1.49	1.55	.42	.15	.14	.04	.09

CAL YR 1976 TOTAL 54107.2 MEAN 148 MAX 7500 MIN 2.4 CFSM 1.20 IN 16.36
WTR YR 1977 TOTAL 40412.7 MEAN 111 MAX 7500 MIN 1.0 CFSM .90 IN 12.22

01644000 GOOSE CREEK NEAR LEESBURG, VA

LOCATION.--Lat 39°01'10", long 77°34'40", Loudoun County, Hydrologic Unit 02070008, on left bank 400 ft (120 m) upstream from bridge on State Highway 621 at Evergreen Mills, 1.4 mi (2.3 km) downstream from Little River, 6.7 mi (10.8 km) south of Leesburg, and 10.9 mi (17.5 km) upstream from mouth.

DRAINAGE AREA.--332 mi² (860 km²).

PERIOD OF RECORD.--July 1909 to April 1911, September 1911 to December 1912, January 1930 to current year.

REVISED RECORDS.--WSP 851: 1935-37. WSP 951: 1933(M), 1937. WSP 1302: 1934-35(M). WSP 2103: Drainage area. WDR VA-72: 1937(M), 1943(M), 1951(M), 1956(M).

GAGE.--Water-stage recorder. Datum of gage is 248.93 ft (75.874 m) above mean sea level. July 12, 1909, to Dec. 31, 1912, nonrecording gage at site 1,000 ft (300 m) downstream at different datum. Jan. 21, 1930, to Nov. 28, 1938, nonrecording gage at site 400 ft (120 m) downstream at datum 4.20 ft (1.280 m) lower than present datum.

REMARKS.--Records good except those for winter periods, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--49 years (water years 1910, 1912, 1931-77), 307 ft³/s (8.694 m³/s), 12.56 in/yr (319 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,100 ft³/s (2,210 m³/s) June 22, 1972, gage height, 30.59 ft (9.324 m), from high-water mark in gage house, from rating curve extended above 11,000 ft³/s (310 m³/s) on basis of slope-area measurement of peak flow; minimum daily, 0.40 ft³/s (0.011 m³/s) Sept. 27-30, 1941.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May or June 1889 reached a stage of about 29 ft (8.8 m), discharge, about 45,000 ft³/s (1,300 m³/s), site and datum in use 1930-38, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 48,700 ft³/s (1,380 m³/s) at 1930 hours Oct. 9, gage height, 25.74 ft (7.846 m), no other peak above base of 4,000 ft³/s (110 m³/s); minimum, 5.1 ft³/s (0.14 m³/s) Sept. 6-7, 15; minimum gage height, 0.99 ft (0.302 m) Sept. 6-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	263	606	170	98	75	167	281	153	55	14	6.1	30
2	555	554	182	81	75	148	372	155	57	15	11	17
3	1500	512	155	88	78	133	490	165	48	12	11	10
4	585	493	167	90	87	151	489	152	40	10	9.6	7.5
5	357	443	138	95	93	344	2560	146	36	9.0	6.3	5.7
6	256	392	138	93	82	277	1530	213	40	8.3	6.6	5.1
7	245	364	1290	96	76	235	1050	267	52	7.9	14	6.6
8	419	338	866	85	72	204	667	284	51	17	19	55
9	22700	367	524	88	71	140	640	172	56	15	22	23
10	11000	380	439	90	96	167	667	134	88	14	19	19
11	1240	296	401	86	295	155	546	129	75	41	13	16
12	872	270	421	80	336	164	487	120	56	107	14	16
13	640	266	361	70	276	490	433	112	44	157	13	11
14	541	245	284	80	234	1040	380	102	40	62	13	6.7
15	474	237	277	81	191	688	754	100	40	31	14	5.1
16	413	227	270	69	147	548	325	93	45	20	10	6.1
17	366	213	273	61	114	432	297	85	43	16	17	6.9
18	367	211	240	77	104	385	276	83	50	13	13	11
19	303	205	216	76	116	370	261	93	58	11	10	9.7
20	606	196	219	74	110	314	245	87	62	16	7.9	16
21	1400	186	237	77	110	370	227	79	106	25	7.3	38
22	702	186	165	73	107	448	216	73	99	16	9.7	30
23	554	171	155	72	120	1000	206	68	36	14	10	17
24	524	163	145	77	142	889	201	64	24	9.8	9.6	11
25	702	163	144	82	325	958	210	60	26	9.3	11	9.1
26	1210	163	158	88	237	486	233	75	26	15	14	8.3
27	788	166	152	87	198	418	201	73	27	13	8.3	37
28	650	167	148	81	192	423	179	62	27	14	8.9	24
29	578	241	130	76	---	493	182	56	47	11	8.6	16
30	523	288	108	72	---	386	168	48	24	9.5	9.6	12
31	531	---	96	74	---	335	---	49	---	9.7	80	---
TOTAL	53176	8938	8681	2572	4177	12897	14553	3564	1467	750.5	487.7	485.0
MEAN	1715	298	280	83.0	149	416	485	115	48.9	24.2	15.7	16.2
MAX	22700	606	1290	98	336	1040	2560	284	106	157	80	55
MIN	245	163	96	70	71	133	168	48	24	7.9	6.3	5.1
CFSM	5.17	.87	.84	.25	.45	1.25	1.46	.35	.15	.07	.05	.05
IN.	5.96	.97	.97	.29	.47	1.45	1.63	.40	.16	.08	.05	.05

CAL YR 1976 TOTAL 153055.0 MEAN 420 MAX 22700 MIN 13 CFSM 1.27 IN 17.24
WTR YR 1977 TOTAL 111427.0 MEAN 305 MAX 22700 MIN 5.1 CFSM .92 IN 12.49

01644291 STAVE RUN NEAR RESTON, VA

LOCATION.--Lat 38°56'50", long 77°22'10", Fairfax County, Hydrologic Unit 02070008, on left bank 450 ft (137 m) downstream from the western boundary line of the U.S. Geological Survey National Center property, 0.31 mi (0.50 km) upstream from mouth, and 1.4 mi (2.3 km) southwest of Sunset Hills in Reston.

DRAINAGE AREA.--0.08 mi² (0.21 km²).

PERIOD OF RECORD.--October 1971 to current year.

GAGE.--Water-stage recorder and trapezoidal flume. Datum of gage is 367.25 ft (111.738 m) above mean sea level.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--6 years, 0.13 ft³/s (0.004 m³/s), 22.07 in/yr (561 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 170 ft³/s (4.81 m³/s) Sept. 25, 1975, Aug. 24, 1977, from rating curve extended above 67 ft³/s (1.90 m³/s) on basis of flow-over-embankment measurement of peak flow; maximum gage height, 2.84 ft (0.866 m) Aug. 24, 1977; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 45 ft³/s (1.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	0910	74	2.10	2.08	0.634	June 20	1320	97	2.75	2.32	0.707
June 17	1740	158	4.47	2.76	.841	July 12	2000	84	2.38	2.19	.668
June 18	1515	95	2.69	2.30	.701	Aug. 24	1330	*170	4.81	2.84	.866

Minimum, no flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.21	.01	.01	.00	.00	.00	.02	.02	.00	.00	.37	.00
2	1.6	.01	.00	.00	.00	.00	.60	.66	.00	.00	.00	.00
3	.36	.01	.00	.00	.00	.00	.05	.06	.00	.00	.00	.00
4	.03	.01	.00	.00	.00	.01	.67	.30	.00	.00	.00	.00
5	.03	.01	.00	.00	.00	.01	.78	.08	.00	.00	.02	.05
6	.03	.01	.07	.00	.00	.01	.05	.24	.30	.00	.19	.02
7	.02	.01	1.7	.00	.00	.01	.07	.16	.01	.16	.19	.00
8	.18	.01	.01	.00	.00	.01	.02	.05	.00	.00	1.1	.00
9	2.6	.00	.01	.00	.00	.01	.02	.05	.08	.29	.32	.00
10	.05	.00	.01	.00	.10	.01	.02	.05	.02	.00	.23	.00
11	.03	.00	.06	.00	.05	.01	.02	.06	.01	.17	.01	.00
12	.03	.03	.01	.00	.02	.01	.02	.05	.00	.76	.00	.00
13	.03	.01	.00	.00	.00	2.1	.02	.05	.00	.07	.00	.00
14	.02	.00	.00	.00	.00	.16	.02	.03	.00	.00	.20	.00
15	.02	.00	.00	.20	.00	.06	.02	.03	.00	.00	.00	.01
16	.02	.00	.00	.02	.00	.02	.01	.02	.00	.00	.00	.00
17	.13	.00	.00	.00	.00	.02	.01	.02	1.6	.00	.00	.00
18	.03	.00	.00	.00	.00	.23	.01	.06	1.1	.00	.00	.00
19	.02	.00	.00	.00	.00	.02	.01	.02	.02	.00	.00	.06
20	1.3	.00	.04	.00	.00	.13	.01	.02	.05	.17	.00	.03
21	.05	.00	.01	.00	.00	.02	.01	.02	.02	.05	.07	.00
22	.03	.00	.00	.00	.00	1.2	.01	.02	.01	.00	.00	.00
23	.02	.00	.00	.00	.00	.06	.01	.02	.00	.00	.00	.00
24	.24	.00	.00	.00	.20	.05	.36	.02	.00	.00	3.6	.00
25	.67	.00	.00	.00	.05	.03	.01	.33	.00	.13	.01	.00
26	.26	.00	.03	.00	.02	.02	.01	.02	.00	.01	.00	.02
27	.06	.11	.00	.00	.00	.02	.01	.02	.00	.00	.00	.06
28	.06	.00	.00	.00	.00	.21	.09	.01	.02	.00	.00	.00
29	.02	.25	.00	.00	---	.02	.06	.00	.00	.00	.00	.00
30	.29	.01	.00	.00	---	.02	.02	.00	.00	.07	.00	.00
31	.32	---	.00	.00	---	.02	---	.00	---	.00	.00	---
TOTAL	8.58	1.07	1.99	.22	.44	4.40	3.02	2.49	4.76	1.88	6.31	.23
MEAN	.28	.036	.064	.007	.016	.14	.10	.080	.16	.061	.20	.008
MAX	2.6	.25	1.7	.20	.20	2.1	.78	.66	1.6	.76	3.6	.06
MIN	.02	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00
CFSM	3.50	.45	.80	.09	.20	1.75	1.25	1.00	2.00	.76	2.50	.10
IN.	3.99	.50	.92	.10	.20	2.04	1.39	1.16	2.18	.88	2.90	.11

CAL YR 1976 TOTAL 31.09 MEAN .085 MAX 2.6 MIN .00 CFSM 1.06 IN 14.28
WTR YR 1977 TOTAL 35.40 MEAN .097 MAX 3.6 MIN .00 CFSM 1.21 IN 16.29

01644295 SMILAX BRANCH AT RESTON, VA

LOCATION.--Lat 38°57'10", long 77°22'04", Fairfax County, Hydrologic Unit 02070008, on right bank 100 ft (30 m) upstream from Dulles Airport Road, 0.4 mi (0.6 km) upstream from mouth, 1.0 mi (1.6 km) west of Sunset Hills in Reston, and 4.3 mi (6.9 km) east of Dulles International Airport.

DRAINAGE AREA.--0.32 mi² (0.83 km²).

PERIOD OF RECORD.--March 1967 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 356.59 ft (108.689 m) above mean sea level.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--10 years, 0.41 ft³/s (0.012 m³/s), 17.40 in/yr (442 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 230 ft³/s (6.51 m³/s) June 21, 1972, gage height, 5.79 ft (1.765 m), from rating curve extended above 80 ft³/s (2.3 m³/s) on basis of computation of peak flow through culvert; no flow for many days most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 20 ft³/s (0.57 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 2	1630	23	0.65	3.93	1.198	June 18	1830	51	1.44	4.18	1.274
Oct. 9	1000	69	1.95	4.38	1.335	June 20	1645	45	1.27	4.11	1.253
Oct. 20	1630	28	.79	3.93	1.198	July 12	1730	40	1.13	4.06	1.237
Mar. 13	1715	52	1.47	4.19	1.277	Aug. 24	1400	*126	3.57	4.92	1.500
June 17	2045	68	1.93	4.36	1.329						

No flow many days in July, August, and September.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.31	.35	.12	.06	.02	.11	.17	.16	.04	.04	.08	.03
2	3.6	.25	.13	.04	.02	.10	1.4	.51	.03	.04	.00	.01
3	1.0	.18	.11	.04	.03	.11	.45	.26	.02	.01	.05	.01
4	.07	.19	.11	.05	.05	.15	1.3	.46	.02	.01	.02	.01
5	.03	.17	.11	.04	.05	.12	2.9	.34	.03	.01	.06	.05
6	.02	.14	.12	.04	.04	.11	.87	.38	.18	.06	.02	.02
7	.02	.13	4.3	.04	.04	.11	.45	.29	.04	.21	.02	.02
8	.17	.12	.48	.04	.03	.10	.35	.19	.02	.27	.81	.01
9	8.3	.12	.25	.04	.04	.10	.29	.13	.58	.39	.08	.00
10	.51	.13	.19	.04	.11	.10	.27	.11	.06	.09	.19	.00
11	.34	.12	.23	.03	.10	.10	.24	.10	.03	.30	.05	.00
12	.33	.14	.23	.03	.17	.11	.22	.09	.02	1.6	.06	.00
13	.34	.12	.14	.03	.14	7.3	.22	.07	.02	.12	.01	.00
14	.31	.12	.12	.03	.11	2.2	.20	.07	.02	.06	.05	.00
15	.31	.12	.13	.04	.11	1.0	.18	.06	.03	.05	.05	.01
16	.31	.11	.13	.03	.09	.31	.17	.06	.02	.01	.01	.03
17	.44	.11	.12	.03	.09	.25	.16	.05	2.2	.01	.01	.01
18	.36	.11	.11	.03	.09	.41	.15	.07	2.2	.03	.00	.00
19	.33	.15	.11	.03	.09	.23	.15	.06	.41	.11	.00	.01
20	4.4	.16	.21	.03	.09	.31	.14	.05	1.7	.25	.00	.08
21	.81	.11	.13	.03	.09	.22	.13	.04	.39	.11	.00	.00
22	.45	.10	.10	.03	.09	3.6	.12	.04	.17	.05	.00	.00
23	.40	.10	.10	.03	.10	.71	.11	.05	.14	.01	.00	.00
24	.86	.10	.08	.03	.40	.36	.81	.04	.14	.00	5.1	.00
25	2.2	.10	.08	.03	.18	.27	.25	.22	.12	.06	.12	.00
26	2.0	.12	.16	.03	.15	.24	.23	.08	.12	.02	.01	.00
27	.58	.25	.10	.03	.13	.22	.21	.04	.09	.00	.01	.00
28	.52	.13	.10	.05	.12	.37	.19	.04	.09	.00	.01	.00
29	.51	.66	.09	.03	---	.28	.21	.03	.09	.00	.01	.00
30	.46	.14	.08	.03	---	.23	.19	.03	.04	.03	.01	.00
31	1.2	---	.07	.02	---	.20	---	.04	---	.01	.03	---
TOTAL	31.87	4.85	8.54	1.08	2.77	20.03	12.73	4.16	9.06	3.96	6.87	.30
MEAN	1.03	.16	.28	.035	.099	.65	.42	.13	.30	.13	.22	.010
MAX	8.3	.66	4.3	.06	.40	7.3	2.9	.51	2.2	1.6	5.1	.08
MIN	.02	.10	.07	.02	.02	.10	.11	.03	.02	.00	.00	.00
CFSM	3.22	.50	.88	.11	.31	2.03	1.31	.41	.94	.41	.69	.03
IN.	3.69	.56	.99	.13	.32	2.32	1.47	.48	1.05	.46	.80	.03

CAL YR 1976 TOTAL 156.24 MEAN .43 MAX 8.4 MIN .08 CFSM 1.34 IN 18.10
WTR YR 1977 TOTAL 106.22 MEAN .29 MAX 8.3 MIN .00 CFSM .91 IN 12.31

01645784 SNAKEDEN BRANCH AT RESTON, VA

LOCATION.--Lat 38°55'48", long 77°20'43", Fairfax County, Hydrologic Unit 02070008, on right bank at upstream side of culvert on Soapstone Drive, 1.1 mi (1.8 km) upstream from Lake Elsa Dam, and 1.7 mi (2.7 km) south of Sunset Hills in Reston.

DRAINAGE AREA.--0.79 mi^2 (2.05 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1973 to current year.

GAGE.--Water-stage recorder. Datum of gage is 320.15 ft (97.582 m) above mean sea level.

REMARKS.--Records fair. Recording rain gage located at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 523 ft^3/s (14.8 m^3/s) Sept. 14, 1973, gage height, 5.04 ft (1.536 m), from rating curve extended above 98 ft^3/s (2.8 m^3/s) on basis of computation of peak flow through culvert; minimum daily, 0.08 ft^3/s (0.002 m^3/s) Sept. 2, 1974.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of 6.4 ft (1.95 m), discharge, 760 ft^3/s (21.5 m^3/s), from floodmarks, on basis of computation of peak flow through culvert.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft^3/s (4.2 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 9	1010	304	8.61	3.58	1.091	June 20	1655	200	5.66	2.78	0.847
June 17	2105	177	5.01	2.59	.789	July 12	1750	189	5.35	2.72	.829
June 18	1845	262	7.42	3.28	1.000	Aug. 24	1415	*412	11.7	4.28	1.305

Minimum discharge, 0.10 ft^3/s (0.003 m^3/s) July 24, 25, gage height, 0.78 ft (0.238 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	.60	.50	.42	.34	.38	.34	.50	.28	.18	1.5	.22
2	15	.55	.50	.42	.34	.42	3.0	3.8	.22	.18	.18	.18
3	3.3	.57	.42	.42	.39	.34	.54	.69	.22	.15	.15	.18
4	.49	.51	.42	.42	.43	.46	2.7	2.9	.22	.15	.18	.18
5	.35	.48	.42	.42	.40	.39	4.7	1.2	.28	.15	.15	.22
6	.34	.50	.62	.42	.28	.34	1.0	2.4	1.3	.18	.47	.50
7	.30	.58	11	.40	.28	.34	.70	1.2	.35	1.1	.38	.22
8	.82	.61	.76	.40	.31	.34	.62	.78	.28	.18	4.7	.28
9	27	.65	.59	.40	.37	.34	.47	.55	2.0	1.2	.69	.28
10	.75	.70	.53	.40	.81	.34	.42	.50	.35	.19	1.9	.28
11	.50	.87	.67	.40	.57	.34	.42	.50	.28	.60	.22	.28
12	.48	.72	.62	.40	.53	.34	.48	.50	.28	10	.19	.22
13	.42	.61	.50	.40	.52	13	.50	.50	.28	.70	.18	.22
14	.38	.59	.50	.40	.38	1.0	.47	.48	.35	.28	1.0	.22
15	.34	.59	.50	.90	.34	.53	.42	.42	.35	.22	.22	.18
16	.34	.52	.50	.50	.34	.44	.42	.47	.35	.18	.22	.22
17	.82	.46	.48	.40	.30	.42	.42	.53	6.3	.18	.30	.28
18	.38	.52	.42	.40	.28	.87	.42	.54	10	.15	.30	.22
19	.34	.47	.45	.34	.28	.43	.42	.48	.60	.15	.20	.42
20	14	.43	1.1	.34	.28	.48	.42	.42	7.5	.90	.20	.70
21	1.2	.50	.64	.34	.28	.45	.42	.42	.60	.28	4.4	.22
22	.61	.50	.50	.34	.28	7.6	.42	.42	.35	.15	.40	.22
23	.59	.50	.50	.34	.28	.69	.42	.42	.28	.12	.30	.22
24	2.1	.50	.50	.34	1.4	.53	4.6	.42	.28	.10	22	.22
25	5.4	.50	.50	.46	.52	.50	.70	1.0	.22	.60	.80	.18
26	3.6	.50	.82	.35	.42	.46	.52	.42	.28	.22	.30	.18
27	.69	.58	.52	.34	.38	.42	.49	.42	.28	.18	.22	.28
28	.59	.51	.50	.54	.34	.73	.73	.35	.35	.18	.21	.28
29	.59	2.9	.50	.37	---	.49	.76	.28	.28	.18	.22	.15
30	2.5	.50	.50	.34	---	.42	.50	.28	.22	.42	.22	.15
31	3.0	---	.45	.34	---	.38	---	.28	---	.18	.22	---
TOTAL	89.02	19.02	27.43	12.70	11.67	34.41	28.44	24.07	34.93	19.62	40.61	7.60
MEAN	2.87	.63	.88	.41	.42	1.11	.95	.78	1.16	.63	1.31	.25
MAX	27	2.9	11	.90	1.4	13	4.7	3.8	10	10	22	.70
MIN	.30	.43	.42	.34	.28	.34	.34	.28	.22	.10	.15	.15
CFSM	3.63	.80	1.11	.52	.53	1.41	1.20	.99	1.47	.80	1.66	.32
IN.	4.19	.89	1.29	.60	.55	1.62	1.34	1.13	1.64	.92	1.91	.36

CAL YR 1976 TOTAL 464.71 MEAN 1.27 MAX 27 MIN .10 CFSM 1.61 IN 21.85
WTR YR 1977 TOTAL 349.52 MEAN .96 MAX 27 MIN .10 CFSM 1.22 IN 16.44

01645784 SNAKEDEN BRANCH AT RESTON, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1973 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,030 mg/L Mar. 13, 1977; minimum daily mean, 1 mg/L June 13, 15, Aug. 25, Sept. 13, 14, 1976, Jan. 13, 14, 1977.
SEDIMENT LOADS: Maximum daily, 245 tons (222 tonnes) June 17, 1974; minimum daily, 0 ton (0 tonne) on many days.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,030 mg/L Mar. 13; minimum daily mean, 1 mg/L Jan. 13, 14.
SEDIMENT LOADS: Maximum daily, 183 tons (166 tonnes) Aug. 24; minimum daily, 0 ton (0 tonne) on many days in January, February, June, July, and September.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)
NOV												
01...	1203	.60	60	10.0	2	18	0	5.2	1.3	3.6	1.9	22
JUN												
01...	1107	.28	48	18.0	7	18	0	4.7	1.4	3.6	1.1	23

DATE	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED NITRATE (N) (MG/L)	DISSOLVED NITRATE (NO3) (MG/L)	DISSOLVED NITRITE (N) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO PHOSPHATE (PO4) (MG/L)	DISSOLVED IRON (FE) (UG/L)
NOV											
01...	5.4	.1	12	45	.12	.50	.00	.12	.01	.03	10
JUN											
01...	1.7	.1	13	42	.14	.60	.00	.14	.00	.00	260

01645784 SNAKEDEN BRANCH AT RESTON, VA--Continued

SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	40	0.25	18	0.03	14	0.02	5	0.01	7	0.01	7	0.01
2	196	32	17	0.03	17	0.02	5	0.01	7	0.01	9	0.01
3	68	1.6	17	0.03	14	0.02	5	0.01	9	0.01	8	0.01
4	25	0.03	15	0.02	14	0.02	4	.00	10	0.01	9	0.01
5	15	0.01	14	0.02	12	0.01	4	.00	9	0.01	8	0.01
6	12	0.01	10	0.01	15	0.03	4	.00	8	0.01	8	0.01
7	9	0.01	12	0.02	289	17	3	.00	8	0.01	7	0.01
8	20	0.15	12	0.02	23	0.05	3	.00	9	0.01	7	0.01
9	334	120	14	0.02	14	0.02	2	.00	10	0.01	7	0.01
10	20	0.04	14	0.03	12	0.02	2	.00	20	0.14	6	0.01
11	12	0.02	16	0.04	13	0.02	2	.00	12	0.02	6	0.01
12	11	0.01	14	0.03	13	0.02	2	.00	11	0.02	9	0.01
13	11	0.01	12	0.02	10	0.01	1	.00	10	0.01	1030	134
14	10	0.01	10	0.02	9	0.01	1	.00	9	0.01	40	0.15
15	9	0.01	9	0.01	9	0.01	20	0.16	8	0.01	12	0.02
16	7	0.01	8	0.01	8	0.01	12	0.02	7	0.01	12	0.01
17	20	0.12	7	0.01	7	0.01	10	0.01	7	0.01	11	0.01
18	9	0.01	8	0.01	5	0.01	9	0.01	6	.00	30	0.12
19	10	0.01	7	0.01	3	.00	8	0.01	6	.00	12	0.01
20	202	27	7	0.01	20	0.18	8	0.01	5	.00	13	0.02
21	20	0.20	8	0.01	28	0.05	8	0.01	5	.00	12	0.01
22	15	0.02	7	0.01	20	0.03	7	0.01	4	.00	138	7.8
23	10	0.02	7	0.01	10	0.01	7	0.01	3	.00	20	0.04
24	21	0.26	6	0.01	5	0.01	7	0.01	30	0.20	19	0.03
25	56	3.5	5	0.01	3	.00	9	0.01	15	0.02	14	0.02
26	44	0.81	4	0.01	25	0.06	8	0.01	10	0.01	17	0.02
27	15	0.03	6	0.01	20	0.03	8	0.01	9	0.01	17	0.02
28	12	0.02	4	0.01	10	0.01	10	0.01	7	0.01	20	0.04
29	12	0.02	40	0.85	7	0.01	9	0.01	---	---	15	0.02
30	32	0.90	20	0.03	7	0.01	8	0.01	---	---	10	0.01
31	38	0.48	---	---	6	0.01	8	0.01	---	---	9	0.01
TOTAL	---	187.57	---	1.36	---	37.72	---	0.34	---	0.57	---	147.48
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	9	0.01	15	0.02	9	0.01	9	.00	143	4.5	12	0.01
2	85	2.6	160	8.6	9	0.01	9	.00	35	0.02	10	.00
3	12	0.02	25	0.05	9	0.01	8	.00	30	0.01	10	.00
4	62	1.1	112	5.1	8	.00	8	.00	25	0.01	9	.00
5	108	1.7	40	0.13	7	0.01	8	.00	20	0.01	14	0.01
6	40	0.17	121	4.1	99	2.0	7	.00	30	0.04	20	0.03
7	18	0.03	45	0.19	15	0.01	79	1.3	20	0.02	14	0.01
8	17	0.03	30	0.06	15	0.01	15	0.01	221	27	15	0.01
9	16	0.02	20	0.03	50	0.35	59	1.3	58	0.73	14	0.01
10	15	0.02	18	0.02	20	0.02	15	0.01	117	4.1	12	0.01
11	15	0.02	18	0.02	15	0.01	35	0.06	20	0.01	12	0.01
12	16	0.02	17	0.02	14	0.01	266	74	15	0.01	11	0.01
13	18	0.02	16	0.02	14	0.01	37	0.08	12	0.01	11	0.01
14	17	0.02	14	0.02	16	0.02	25	0.02	45	0.25	11	0.01
15	16	0.02	12	0.01	15	0.01	20	0.01	15	0.01	10	.00
16	15	0.02	13	0.02	12	0.01	19	0.01	12	0.01	11	0.01
17	14	0.02	15	0.02	258	55	17	0.01	13	0.01	12	0.01
18	14	0.02	15	0.02	326	91	16	0.01	13	0.01	12	0.01
19	12	0.01	14	0.02	30	0.05	12	.00	14	0.01	15	0.02
20	11	0.01	12	0.01	223	52	35	0.16	15	0.01	25	0.05
21	11	0.01	12	0.01	35	0.06	18	0.01	141	12	18	0.01
22	10	0.01	11	0.01	25	0.02	14	0.01	30	0.03	15	0.01
23	9	0.01	11	0.01	18	0.01	12	.00	15	0.01	12	0.01
24	234	29	10	0.01	15	0.01	9	.00	358	183	12	0.01
25	25	0.05	10	0.03	14	0.01	25	0.04	24	0.05	10	.00
26	22	0.03	10	0.01	12	0.01	21	0.01	15	0.01	7	.00
27	18	0.02	10	0.01	11	0.01	18	0.01	25	0.01	12	0.01
28	20	0.04	9	0.01	15	0.05	18	0.01	25	0.01	10	0.01
29	23	0.05	9	0.01	12	0.01	15	0.01	23	0.01	8	.00
30	18	0.02	9	0.01	10	0.01	20	0.02	20	0.01	5	.00
31	---	---	9	0.01	---	---	18	0.01	12	0.01	---	---
TOTAL	---	35.12	---	18.61	---	200.75	---	77.11	---	231.93	---	0.29

TOTAL LOAD FOR YEAR: 938.85 TONS.

01646000 DIFFICULT RUN NEAR GREAT FALLS, VA

LOCATION.--Lat 38°58'33", long 77°14'46", Fairfax County, Hydrologic Unit 02070008, on right bank 300 ft (91 m) downstream from Rocky Run, 0.7 mi (1.1 km) upstream from mouth, and 1.5 mi (2.4 km) southeast of Great Falls.

DRAINAGE AREA.--57.9 mi² (150.0 km²).

PERIOD OF RECORD.--October 1934 to current year. Monthly discharge only October to December 1934, published in WSP 1302.

REVISED RECORDS.--WSP 951: 1936(M), 1937-38, 1939-40(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 151.30 ft (46.116 m) above mean sea level.

REMARKS.--Records good except those for period of no gage-height record, Dec. 1 to Jan. 25, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--43 years, 58.6 ft³/s (1.660 m³/s), 13.74 in/yr (349 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,200 ft³/s (912 m³/s) June 22, 1972, gage height, 21.40 ft (6.523 m), from floodmarks, from rating curve extended above 1,600 ft³/s (45 m³/s) on basis of contracted-opening measurement at gage height 13.18 ft (4.017 m) and slope-area measurement of peak flow; minimum, 0.05 ft³/s (0.001 m³/s) Sept. 9, 10, 1966, gage height, 1.65 ft (0.503 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,080 ft³/s (30.6 m³/s) at 1930 hours Oct. 9, gage height, 7.46 ft (2.274 m), no other peak above base of 1,000 ft³/s (28 m³/s); minimum, 6.5 ft³/s (0.18 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94	74	41	31	28	38	44	32	20	15	94	17
2	214	59	38	31	28	34	100	46	18	14	45	15
3	369	56	37	31	31	33	81	49	16	13	16	18
4	66	52	36	32	34	36	70	46	15	13	14	14
5	44	48	35	33	34	38	230	76	15	12	16	14
6	45	46	37	31	30	35	112	74	24	12	14	15
7	41	44	400	31	28	34	74	96	26	14	14	45
8	38	43	110	31	28	32	64	54	17	19	74	16
9	532	40	66	30	29	32	58	39	41	17	92	13
10	157	39	45	31	59	31	54	36	29	16	71	12
11	54	38	48	32	71	30	53	34	20	11	24	11
12	44	39	56	31	54	32	51	33	18	117	18	9.3
13	45	39	47	30	53	374	49	30	16	180	17	8.7
14	41	39	41	31	41	180	47	29	16	27	22	8.2
15	38	38	40	33	37	70	46	27	17	19	23	8.2
16	38	37	38	37	33	55	45	26	16	16	16	9.0
17	41	36	37	34	33	46	42	25	41	14	15	14
18	41	38	37	31	33	49	41	24	144	14	15	9.9
19	36	38	36	31	30	49	41	26	56	13	14	8.7
20	230	39	36	30	30	46	39	24	87	17	13	18
21	264	36	43	29	29	46	34	22	75	16	13	9.3
22	65	36	40	29	30	286	38	20	26	14	29	7.3
23	51	34	38	28	31	114	37	20	22	10	16	7.3
24	53	34	36	28	62	70	63	20	20	9.9	300	7.0
25	98	35	34	34	73	59	88	32	20	10	73	7.3
26	436	34	36	36	46	54	41	28	20	18	27	7.9
27	83	37	37	36	43	50	36	22	18	11	22	8.4
28	63	36	34	38	43	54	35	20	17	9.9	18	9.9
29	56	76	32	38	---	57	38	19	20	9.9	17	7.9
30	53	53	32	32	---	51	33	18	16	12	16	7.0
31	145	---	31	28	---	48	---	20	---	12	16	---
TOTAL	3623	1291	1652	988	1101	2163	1789	1067	904	705.7	1174	361.3
MEAN	117	43.0	53.3	31.9	39.3	69.8	59.6	34.4	30.1	22.8	37.9	12.0
MAX	532	76	400	38	73	374	230	96	144	180	300	45
MIN	36	34	31	28	28	30	33	18	15	9.9	13	7.0
CFSM	2.02	.74	.92	.55	.68	1.21	1.03	.59	.52	.39	.66	.21
IN.	2.33	.83	1.06	.63	.71	1.39	1.15	.69	.58	.45	.75	.23

CAL YR 1976 TOTAL 24006.1 MEAN 65.6 MAX 1250 MIN 8.7 CFSM 1.13 IN 15.42
WTR YR 1977 TOTAL 16819.0 MEAN 46.1 MAX 532 MIN 7.0 CFSM .80 IN 10.81

01646500 POTOMAC RIVER NEAR WASHINGTON, DC

LOCATION.--Lat 38°56'58", long 77°07'40", Montgomery County, Md., Hydrologic Unit 02070008, on left bank just above Little Falls Dam, 1 mi (1.6 km) upstream from District of Columbia boundary line, 1.2 mi (1.9 km) upstream from Chain Bridge, 1.8 mi (2.9 km) east of Langley, Fairfax County, Va., and at mile 117.4 (188.9 km).

DRAINAGE AREA.--11,560 mi^2 (29,940 km^2).

PERIOD OF RECORD.--March 1930 to current year.

REVISED RECORDS.--WSP 726: Drainage area. WDR MD-DE-75-1: 1973-74(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 37.95 ft (11.567 m) above mean sea level. Prior to June 7, 1930, nonrecording gage, and June 7, 1930, to Jan. 22, 1965, water-stage recorder, at site 1 mi (1.6 km) upstream on right bank at same datum.

REMARKS.--Records good. Diversions at Great Falls through aqueducts, and since June 1959, from gage pool at Little Falls Dam, for municipal supply of Washington, D. C.; since October 1958, at Rockville Filtration Plant, for municipal supply of city of Rockville; since April 1961, at Potomac Filtration Plant, for water supply of Washington Suburban Sanitary District; since October 1961, at Fairfax Water Treatment Plant for water supply of city of Fairfax (from Goose Creek); and since April 1964, at Violets Lock to Chesapeake and Ohio Canal. Low flow affected slightly by Stony River Reservoir and since December 1950 by Savage River Reservoir. Low flow affected extensively at times by run-of-the-river hydroelectric plants. Gage-height telemeter at station.

AVERAGE DISCHARGE.--47 years, 11,170 ft^3/s (316.3 m^3/s), 13.12 in/yr (333 mm/yr), adjusted for diversions.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 484,000 ft^3/s (13,700 m^3/s) Mar. 19, 1936, gage height, 28.1 ft (8.56 m), site then in use; minimum daily observed at gaging station, 121 ft^3/s (3.43 m^3/s) Sept. 9, 1966, does not include diversion of 489 ft^3/s (13.8 m^3/s) for municipal use; minimum daily (adjusted), 601 ft^3/s (17.0 m^3/s) Sept. 10, 1966, includes diversion of 449 ft^3/s (12.7 m^3/s) for municipal use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 2, 1889, was of approximately the same magnitude as that of Mar. 19, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 45,000 ft^3/s (1,200 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 11	0630	*208000	5890	13.18	4.017	Mar. 24	0030	45400	1290	6.46	1.969
Mar. 15	1630	59700	1690	7.18	2.188	Apr. 7	0130	94200	2670	8.64	2.633

Minimum daily discharge, 796 ft^3/s (22.5 m^3/s) Sept. 22, does not include diversion for municipal use; minimum daily (adjusted), 1,330 ft^3/s (37.7 m^3/s) Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2830	25500	6440	3710	3580	17600	17700	7310	2660	2500	1700	1050
2	18800	25300	6350	3000	3340	16400	16300	7050	2500	2040	1740	1090
3	42600	24800	6690	3600	3220	14300	26500	6870	2340	1840	1340	1250
4	43100	21900	6610	3800	3220	12300	35700	6520	2450	1740	1250	1290
5	32700	19900	6100	3600	3400	15200	46600	6350	2290	1510	1090	1170
6	21100	18100	5860	3600	2820	25900	81400	6190	2450	1420	1050	1090
7	14300	16400	8340	3800	2930	26600	87200	6350	2450	1420	936	1210
8	11300	14500	14400	3600	3100	21200	57900	6350	2290	1290	1340	1170
9	42600	12800	22500	3800	3100	18000	40500	6190	2450	1210	2040	1090
10	167000	11800	27700	4440	3220	15400	31700	6020	2710	1210	1290	1130
11	194000	11000	22300	4100	3710	13500	25900	6100	2820	1250	1050	1170
12	95000	10400	18200	3200	4300	12100	22300	5700	2770	2240	1210	1090
13	44000	9860	15900	3600	5780	13200	19500	5240	2550	2340	1170	1090
14	30700	9550	14600	4000	6610	29800	17100	4860	2400	2040	1170	936
15	23600	9040	13600	3800	7680	55400	15400	4590	2450	2400	1560	899
16	19400	8640	12300	3400	7680	47900	14000	4370	2550	2090	1340	864
17	16400	8250	11100	3200	7500	33600	12900	4160	2610	1890	1250	864
18	14200	7770	10700	3600	7220	25900	11900	3830	3280	2140	1210	864
19	12400	7770	10200	3600	6690	21200	11100	3770	3520	1990	2090	830
20	11800	7400	9970	3800	6020	20300	10400	3710	3280	1740	1840	864
21	17000	7050	9140	3800	5240	20300	9760	3580	3340	1890	1890	830
22	19500	6780	8250	3600	5160	21300	9240	3460	2880	2140	1790	796
23	23900	6610	7680	3600	5240	33900	8840	3400	2340	3460	1600	1010
24	22300	6350	7050	3600	5240	42900	8440	3340	2140	2990	2550	1170
25	20800	6270	6780	4000	5860	33900	8440	3460	1990	2710	2290	973
26	25900	6100	6270	4000	7870	27100	11000	3280	1990	2190	1470	1010
27	37100	5940	6100	4510	21500	22500	9140	3160	1890	1990	1130	973
28	39000	5860	6020	4230	20000	19500	8150	2860	1700	1840	1050	1090
29	30200	6020	6190	3520	---	18400	7590	2770	2240	1650	973	1090
30	24100	6350	5780	3830	---	21600	7500	2770	2880	1650	899	1090
31	22900	---	5160	3580	---	20800	---	2710	---	1510	1010	---
TOTAL	1140530	344010	324680	115520	171230	738000	690100	146330	76210	60320	44310	31043
MEAN	36790	11470	10470	3726	6115	23810	23000	4720	2540	1946	1430	1035
MAX	194000	25500	27700	4510	21500	55400	87200	7310	3520	3460	2550	1290
MIN	2830	5860	5160	3000	2820	12100	7500	2710	1700	1210	899	796
(*)	454	436	433	455	430	389	409	456	495	530	540	537
MEAN#	37240	11910	10900	4180	6550	24200	23410	5180	3040	2480	1970	1570
CFSM#	3.22	1.03	.94	.36	.57	2.09	2.03	.45	.26	.21	.17	.14
IN#	3.71	1.15	1.09	.42	.59	2.41	2.26	.52	.29	.25	.20	.15

CAL YR 1976 TOTAL 4330570 MEAN 11830 MAX 194000 MIN 1120 MEAN# 12310 CFSM# 1.06 IN# 14.46
WTR YR 1977 TOTAL 3882291 MEAN 10640 MAX 194000 MIN 796 MEAN# 11100 CFSM# .96 IN# 13.04

* Diversion in cfs, for municipal supply of Washington, D.C., Washington Suburban Sanitary District, city of Rockville, city of Fairfax (from Goose Creek), and the Chesapeake and Ohio Canal (insignificant diversion to canal during current water year); records furnished by Corps of Engineers, Washington Suburban Sanitary Commission, city of Rockville, and city of Fairfax.

# Adjusted for diversion.

01653000 CAMERON RUN AT ALEXANDRIA, VA

LOCATION.--Lat 38°48'20", long 77°06'08", Fairfax County, Hydrologic Unit 02070010, on right bank 0.5 mi (0.8 km) downstream from Southern Railway bridge at Alexandria, 0.6 mi (1.0 km) downstream from confluence of Holmes Run and Backlick Run, 1.0 mi (1.6 km) east of the U.S. Army Quartermaster Depot, and 2.9 mi (4.7 km) upstream from mouth. Prior to Nov. 8, 1976, at site 1,200 ft (370 m) upstream.

DRAINAGE AREA.--33.7 mi² (87.3 km²).

PERIOD OF RECORD.--June 1955 to current year.

GAGE.--Water-stage recorder. Datum of gage is 23.85 ft (7.269 m) above mean sea level. Prior to Sept. 20, 1965, at site 0.5 mi (0.8 km) upstream at datum 15.00 ft (4.572 m) higher. Sept. 20, 1965, to Jan. 19, 1976, at site 0.5 mi (0.8 km) upstream at datum 12.66 ft (3.859 m) higher. Jan. 20, 1976, to Nov. 8, 1976, at site 1,200 ft (370 m) upstream at datum 2.78 ft (0.847 m) higher.

REMARKS.--Records good except those for period of no gage-height record, Oct. 1 to Nov. 8, and those above 300 ft³/s (8.5 m³/s), which are poor. Some regulation by Lake Barcroft, formerly Alexandria Reservoir, on Holmes Run 3.6 mi (5.8 km) upstream, usable capacity, 2,092 acre-ft (2.58 hm³). Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--22 years, 35.5 ft³/s (1.005 m³/s), 14.31 in/yr (363 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,900 ft³/s (564 m³/s) June 22, 1972, gage height, 18.14 ft (5.529 m), from rating curve extended above 2,500 ft³/s (71 m³/s) on basis of culvert computations of peak flow for main channel and bypass channels; minimum, 1.1 ft³/s (0.031 m³/s) Aug. 15, 1957, Sept. 22-25, 1964.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft³/s (57 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 25	---	Unknown		Unknown		June 20	1745	3130	88.6	6.42	1.957
Dec. 7	0815	2240	63.4	5.42	1.652	July 12	1815	*a5040	143	8.20	2.499

a From rating curve extended above 180 ft³/s (5.1 m³/s) on basis of slope-conveyance study.

Minimum daily discharge, 1.3 ft³/s (0.037 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	25	17	17	8.3	13	12	10	5.9	3.6	60	2.9
2	400	19	14	16	9.6	10	164	11	5.1	3.5	11	3.0
3	130	18	11	9.4	9.0	10	30	17	4.4	3.4	7.1	5.7
4	21	17	11	9.4	11	12	55	95	3.8	3.3	5.3	3.2
5	12	15	11	9.1	11	12	175	51	4.2	3.2	11	3.0
6	11	14	11	11	28	11	35	158	13	3.2	12	30
7	10	14	471	14	22	10	22	62	9.8	53	8.6	39
8	24	13	47	16	18	10	20	25	5.9	20	6.6	8.5
9	250	12	24	12	16	9.1	17	15	111	88	4.3	9.9
10	24	13	21	20	20	8.9	15	12	18	19	17	7.1
11	13	13	38	16	35	8.8	14	10	8.7	24	11	3.5
12	11	21	41	12	26	8.8	14	9.7	6.1	500	5.5	2.7
13	9.8	14	20	10	14	312	15	9.2	4.5	30	6.6	2.0
14	9.0	19	15	21	12	38	14	10	4.7	13	114	2.0
15	8.6	11	15	52	10	19	13	8.8	4.2	7.2	15	2.1
16	13	11	15	24	7.6	16	13	8.3	3.7	5.8	8.8	5.6
17	22	12	15	17	11	14	12	7.6	142	5.4	6.7	4.9
18	14	11	11	13	9.0	22	11	7.3	76	15	5.0	2.6
19	10	12	11	11	7.7	17	12	8.2	18	5.0	4.0	2.4
20	400	11	24	15	9.1	26	10	7.1	304	9.0	1.4	1.7
21	77	12	30	14	9.2	17	11	6.3	45	24	9.1	1.8
22	20	15	20	13	8.4	322	10	6.0	12	11	1.3	1.7
23	13	11	19	12	9.1	36	11	6.0	6.6	6.6	1.0	1.6
24	36	9.9	12	12	95	20	146	5.7	5.8	3.8	160	1.8
25	200	9.8	13	14	31	16	44	44	5.4	7.2	22	1.8
26	800	9.7	41	16	17	15	23	14	5.0	20	4.9	2.0
27	45	15	16	11	16	13	13	11	4.5	7.8	6.7	2.0
28	21	13	13	15	15	19	13	8.4	4.0	4.8	5.1	2.0
29	16	102	12	23	---	17	20	7.1	3.8	3.4	1.7	1.4
30	26	36	13	11	---	14	13	6.0	3.7	5.3	9.3	1.3
31	150	---	8.3	9.3	---	13	---	6.1	---	3.7	9.1	---
TOTAL	2828.4	528.4	1039.3	475.2	497.0	1089.6	977	662.8	848.8	912.2	551.1	159.2
MEAN	91.2	17.6	33.5	15.3	17.8	35.1	32.6	21.4	28.3	29.4	17.8	5.31
MAX	800	102	471	52	95	322	175	158	304	500	160	39
MIN	8.5	9.7	8.3	9.1	7.6	8.8	10	5.7	3.7	3.2	1.0	1.3
CFSM	2.71	.52	.99	.45	.53	1.04	.97	.64	.84	.87	.53	.16
IN.	3.12	.58	1.15	.52	.55	1.20	1.08	.73	.94	1.01	.61	.18

CAL YR 1976 TOTAL 14251.8 MEAN 38.9 MAX 800 MIN 3.0 CFSM 1.15 IN 15.73
WTR YR 1977 TOTAL 10569.0 MEAN 29.0 MAX 800 MIN 1.3 CFSM .86 IN 11.67

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA

LOCATION.--Lat 38°48'46", long 77°13'43", Fairfax County, Hydrologic Unit 02070010, on left bank 800 ft (244 m) upstream from bridge on State Highway 620, 0.2 mi (0.3 km) upstream from Long Branch, and 2.3 mi (3.7 km) southwest of Annandale.

DRAINAGE AREA.--23.5 mi² (60.9 km²).

PERIOD OF RECORD.--March 1947 to current year (fragmentary prior to October 1947).

REVISED RECORDS.--WSP 1502: 1952. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 190.91 ft (58.189 m) above mean sea level (levels by Stone and Webster Engineering Corp.). Prior to May 12, 1949, nonrecording gage at site 800 ft (244 m) downstream at same datum. May 12, 1949, to June 4, 1970, water-stage recorder at site 800 ft (244 m) downstream at same datum.

REMARKS.--Records good. Slight diurnal fluctuation during low flow caused by sewage disposal plant above station near Fairfax. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--30 years, 27.6 ft³/s (0.782 m³/s), 15.95 in/yr (405 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft³/s (340 m³/s) June 22, 1972, gage height, 15.96 ft (4.865 m), from high-water mark in gage house, from rating curve extended above 6,600 ft³/s (190 m³/s) on basis of contracted-opening and flow-over-road measurement of peak flow; minimum, 0.10 ft³/s (0.003 m³/s) Sept. 25, 26, 1954.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,020 ft³/s (57.2 m³/s) at 0300 hours Oct. 26, gage height, 8.91 ft (2.716 m), no other peak above base of 1,400 ft³/s (40 m³/s); minimum, 0.25 ft³/s (0.007 m³/s) Sept. 25-26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	21	8.6	8.2	7.0	8.9	12	7.3	3.8	2.2	55	4.5
2	274	14	8.6	7.8	7.6	8.2	68	8.6	3.9	1.9	12	3.4
3	80	13	7.9	7.4	8.2	7.9	26	12	3.0	1.7	4.8	7.3
4	15	12	7.6	7.9	11	9.3	35	35	2.8	1.6	2.6	1.4
5	8.9	11	7.9	8.2	9.9	9.3	99	33	3.0	1.5	4.4	1.3
6	7.6	9.7	7.9	8.6	9.2	8.2	34	51	10	1.6	4.9	30
7	7.0	9.7	250	8.9	8.6	7.9	21	32	5.9	36	4.7	18
8	6.7	9.3	30	9.2	7.3	7.6	18	15	3.0	8.2	4.9	2.3
9	189	8.6	15	8.2	7.6	7.9	16	7.9	37	24	15	1.6
10	19	9.3	12	9.6	15	7.6	15	7.3	7.9	5.8	14	1.5
11	9.3	8.9	18	8.9	24	7.6	15	7.3	3.8	3.2	4.8	.99
12	7.9	13	28	8.2	17	7.6	15	6.7	3.0	179	2.1	1.0
13	7.3	11	13	7.5	18	247	14	6.4	2.8	33	2.5	.77
14	6.4	9.3	11	8.2	12	38	13	6.8	2.9	6.1	26	.83
15	6.1	8.9	11	20	9.3	18	13	5.9	3.2	4.1	2.9	1.2
16	6.1	8.6	11	15	8.9	13	12	5.6	3.0	3.2	2.4	3.8
17	16	8.2	11	12	8.9	11	11	5.4	27	3.2	1.9	4.4
18	9.7	8.6	9.7	9.3	7.8	15	11	5.6	25	13	2.1	1.0
19	6.1	8.2	9.3	9.7	7.3	13	11	6.1	7.6	3.4	1.6	.51
20	278	8.2	18	11	7.6	19	11	4.9	109	6.4	1.3	2.8
21	55	8.9	33	10	7.5	12	10	4.9	18	17	1.2	1.0
22	13	11	11	8.9	6.7	146	11	4.9	4.9	10	1.8	.51
23	9.3	7.9	9.3	8.9	7.3	36	10	4.5	4.1	2.8	1.8	.38
24	26	7.9	9.2	8.9	51	21	46	4.7	3.7	1.9	81	.38
25	234	7.9	8.6	9.7	27	16	25	26	3.5	13	12	.32
26	551	7.9	25	11	12	15	15	7.3	3.3	15	3.2	.38
27	24	13	13	8.6	11	14	8.2	4.7	2.8	3.0	2.3	.38
28	15	9.3	9.7	11	11	21	8.6	4.3	2.6	3.0	1.9	.58
29	12	58	9.7	9.6	---	17	15	3.8	3.3	1.8	1.6	.58
30	16	13	8.6	7.2	---	14	7.6	3.6	2.6	2.5	1.5	.44
31	132	---	8.6	6.6	---	13	---	4.0	---	2.3	1.4	---
TOTAL	2098.6	355.3	641.2	294.4	345.7	797.0	626.4	342.5	316.3	411.2	290.4	94.06
MEAN	67.7	11.8	20.7	9.50	12.3	25.7	20.9	11.0	10.5	13.3	9.37	3.14
MAX	551	58	250	20	51	247	99	51	109	179	81	30
MIN	6.1	7.9	7.6	6.6	6.7	7.6	7.6	3.6	2.6	1.5	1.2	.32
CFSM	2.88	.50	.88	.40	.52	1.09	.89	.47	.45	.57	.40	.13
IN.	3.32	.56	1.01	.47	.55	1.26	.99	.54	.50	.65	.46	.15

CAL YR 1976 TOTAL 10371.20 MEAN 28.3 MAX 727 MIN 1.2 CFSM 1.20 IN 16.42
WTR YR 1977 TOTAL 6613.86 MEAN 18.1 MAX 551 MIN .32 CFSM .77 IN 10.47

01655500 CEDAR RUN NEAR WARRENTON, VA

LOCATION.--Lat 38°44'25", long 77°47'16", Fauquier County, Hydrologic Unit 02070010, on right bank at downstream side of bridge on State Highway 672, 1.9 mi (3.1 km) north of Warrenton, and 14.5 mi (23.3 km) upstream from Licking Run.

DRAINAGE AREA.--12.3 mi² (31.9 km²).

PERIOD OF RECORD.--July 1950 to current year.

REVISED RECORDS.--WSP 1382: 1951-53. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 419.40 ft (127.833 m) above mean sea level.

REMARKS.--Records good except those for period of no gage-height record, Jan. 11 to Feb. 9, which are fair. Some regulation by Warrenton municipal water-supply reservoir 400 ft (120 m) above station. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--27 years, 12.5 ft³/s (0.354 m³/s), 13.80 in/yr (351 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,840 ft³/s (222 m³/s) June 21, 1972, gage height, 12.87 ft (3.923 m), from rating curve extended above 600 ft³/s (17 m³/s) on basis of areal study of flood of 1942; no flow part of each day Aug. 11-14, 1967, probably caused by dam 400 ft (120 m) above gage.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1942 reached a stage of about 13 ft (4.0 m), discharge not determined, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,770 ft³/s (135 m³/s) at 0930 hours Oct. 9, gage height, 10.93 ft (3.331 m), no other peak above base of 250 ft³/s (7.1 m³/s); minimum, 0.28 ft³/s (0.008 m³/s) Aug. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	25	7.0	4.8	4.0	7.3	8.1	4.4	2.4	1.6	1.0	.82
2	4.0	20	7.0	4.6	3.8	6.2	10	4.4	2.6	1.6	1.0	.71
3	3.5	18	5.4	4.6	3.6	5.7	11	4.4	2.6	1.5	1.2	.93
4	1.6	16	5.4	5.0	3.6	7.6	14	4.4	2.6	1.5	1.0	.93
5	1.5	14	5.4	5.7	4.2	8.7	43	5.7	2.6	1.4	1.0	.82
6	1.6	13	5.7	5.4	4.0	7.6	40	11	2.6	1.4	1.0	.82
7	1.8	12	60	6.2	4.0	7.0	29	11	2.6	1.4	.93	.82
8	4.3	10	40	5.0	3.8	5.2	23	7.3	2.6	1.4	.93	.71
9	938	9.3	25	5.2	3.6	5.2	18	5.1	2.7	1.4	.82	.82
10	68	9.6	20	6.5	7.2	5.0	16	2.6	2.6	1.4	.82	.82
11	35	8.4	19	5.2	8.1	5.0	14	2.6	2.4	1.5	.82	.82
12	23	9.3	21	4.9	6.8	5.7	12	2.6	2.4	1.5	.82	.71
13	18	9.0	16	4.8	7.0	31	11	3.2	2.2	1.5	.82	.71
14	14	8.1	13	5.0	6.2	39	10	3.2	2.2	1.5	.82	.71
15	12	7.8	13	5.2	5.4	26	9.0	3.2	2.4	1.5	.71	.71
16	10	7.6	13	4.8	4.8	20	8.1	2.2	2.6	1.4	.71	.71
17	12	7.0	12	3.9	4.2	16	7.3	1.9	2.7	1.4	.71	.71
18	11	7.6	10	3.8	4.2	14	7.8	1.9	2.6	1.4	.93	.71
19	8.4	7.0	9.6	3.8	4.2	11	6.8	1.9	2.6	1.4	1.2	.71
20	39	6.2	10	3.9	4.6	11	6.2	2.0	2.6	1.4	1.2	1.0
21	42	6.2	11	3.6	4.0	10	5.9	2.6	2.6	1.4	1.2	.60
22	23	5.9	5.9	3.6	4.0	32	5.4	2.7	2.6	1.4	1.0	.60
23	18	5.2	7.6	3.4	4.2	26	5.0	2.9	2.9	1.4	1.0	.56
24	18	5.2	6.8	3.8	8.6	22	5.7	2.9	2.7	1.4	.71	.60
25	29	5.4	6.5	4.4	11	17	5.9	2.9	2.6	1.4	.56	.60
26	61	5.4	7.6	4.4	8.7	15	5.4	3.1	2.4	1.2	.52	.52
27	34	5.9	7.3	4.2	8.7	13	4.8	3.1	2.2	1.2	.56	.52
28	25	5.9	6.8	4.2	8.4	14	4.8	3.1	2.2	1.2	.71	.56
29	20	14	7.0	4.2	---	13	4.8	3.1	2.2	1.2	.71	.60
30	18	9.3	5.7	4.0	---	12	4.4	3.1	2.0	1.2	.82	.56
31	42	---	5.4	4.0	---	9.6	---	2.7	---	1.0	.82	---
TOTAL	1538.3	293.3	395.1	142.0	154.9	427.8	356.4	117.2	75.0	43.1	27.05	21.42
MEAN	49.6	9.78	12.7	4.58	5.53	13.8	11.9	3.78	2.50	1.39	.87	.71
MAX	938	25	60	6.5	11	39	43	11	2.9	1.6	1.2	1.0
MIN	1.5	5.2	5.4	3.4	3.6	5.0	4.4	1.9	2.0	1.0	.52	.52
CFSM	4.03	.80	1.03	.37	.45	1.12	.97	.31	.20	.11	.07	.06
IN.	4.65	.89	1.19	.43	.47	1.29	1.08	.35	.23	.13	.08	.06

CAL YR 1976 TOTAL 5392.70 MEAN 14.7 MAX 938 MIN 1.2 CFSM 1.20 IN 16.31
WTR YR 1977 TOTAL 3591.57 MEAN 9.84 MAX 938 MIN .52 CFSM .80 IN 10.86

01656000 CEDAR RUN NEAR CATLETT, VA

LOCATION.--Lat 38°38'12", long 77°37'31", Fauquier County, Hydrologic Unit 02070010, on right bank 100 ft (30 m) downstream from bridge on State Highway 806, 0.9 mi (1.4 km) downstream from Licking Run, and 1.4 mi (2.3 km) southeast of Catlett.

DRAINAGE AREA.--93.4 mi² (241.9 km²).

PERIOD OF RECORD.--July 1950 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 199.15 ft (60.701 m) above mean sea level.

REMARKS.--Records good except those for January and February, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--27 years, 84.4 ft³/s (2.390 m³/s), 12.27 in/yr (312 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,600 ft³/s (1,090 m³/s) June 22, 1972, gage height, 27.66 ft (8.431 m), from floodmarks, from rating curve extended above 5,000 ft³/s (140 m³/s) on basis of contracted-opening measurement of peak flow; no flow on many days in 1954, 1957, 1959, 1963, 1964, and 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 15, 1942, reached a stage of about 22 ft (6.7 m), discharge not determined, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,800 ft³/s (51 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1730	*8270	234	17.06	5.200	Oct. 26	0330	2850	80.7	10.94	3.335

Minimum discharge, 0.23 ft³/s (0.007 m³/s) Aug. 22-24, 30, gage height, 1.81 ft (0.552 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	207	45	27	10	50	36	15	4.6	1.3	.58	.50
2	398	136	40	22	9.0	41	63	14	4.2	1.2	.58	1.5
3	401	118	37	20	13	34	74	22	3.3	1.1	.47	1.4
4	91	98	34	20	37	37	80	19	3.1	.82	.50	3.4
5	44	82	32	21	64	54	465	18	2.8	.74	.66	31
6	26	67	31	21	50	45	265	19	3.1	.66	3.0	27
7	19	62	699	23	19	41	146	40	3.5	.82	1.3	18
8	74	56	318	21	12	34	114	30	3.3	.74	.66	4.6
9	3350	46	146	20	11	30	84	20	3.3	1.1	.82	2.4
10	878	48	114	21	20	26	69	16	5.5	1.4	5.0	3.0
11	191	44	116	22	50	24	62	12	4.9	1.5	1.8	3.2
12	118	45	158	19	66	24	54	10	3.2	2.9	1.4	2.1
13	88	52	120	16	94	404	46	9.0	3.0	5.1	1.1	1.6
14	71	44	76	17	75	277	41	8.0	2.7	4.0	.98	1.1
15	57	42	71	23	58	146	37	7.4	2.6	2.1	3.8	.98
16	44	38	76	28	40	106	34	7.2	3.0	1.2	3.3	.90
17	44	35	82	22	31	74	30	6.4	3.0	.82	1.7	.74
18	60	35	64	17	28	65	28	5.4	3.0	.66	.98	.58
19	62	34	52	15	30	54	27	4.6	3.2	.47	.44	1.3
20	409	33	56	14	30	46	23	4.3	2.8	.44	.38	1.1
21	505	31	92	13	26	48	22	4.3	3.0	.44	.32	2.4
22	158	30	56	13	23	236	21	4.5	2.7	3.1	.26	2.0
23	108	27	43	12	24	209	19	4.6	2.2	4.6	.23	1.4
24	108	25	44	13	40	116	20	4.6	2.0	1.7	.56	.98
25	319	25	43	15	128	82	23	5.3	1.9	1.1	29	.58
26	1580	26	42	16	78	67	23	8.5	2.1	.90	4.0	.50
27	268	28	45	16	71	56	19	6.3	2.3	3.3	2.0	.58
28	168	29	38	17	71	57	16	5.1	2.3	1.7	1.1	.82
29	130	108	38	20	---	67	17	4.6	1.9	1.1	.82	.98
30	110	90	40	17	---	52	16	4.4	1.4	.82	.47	.98
31	502	---	35	15	---	44	---	4.4	---	.58	.35	---
TOTAL	10377	1741	2879	576	1208.0	2646	1954	343.9	89.9	48.41	68.56	117.62
MEAN	335	58.0	92.9	18.6	43.1	85.4	65.1	11.1	3.00	1.56	2.21	3.92
MAX	3350	207	699	28	128	404	465	40	5.5	5.1	29	31
MIN	19	25	31	12	9.0	24	16	4.3	1.4	.44	.23	.50
CFSM	3.59	.62	1.00	.20	.46	.91	.70	.12	.03	.02	.02	.04
IN.	4.13	.69	1.15	.23	.48	1.05	.78	.14	.04	.02	.03	.05

CAL YR 1976 TOTAL 36311.60 MEAN 99.2 MAX 3350 MIN 1.0 CFSM 1.06 IN 14.46
WTR YR 1977 TOTAL 22049.39 MEAN 60.4 MAX 3350 MIN .23 CFSM .65 IN 8.78

01656100 CEDAR RUN NEAR ADEN, VA

LOCATION.--Lat 38°36'58", long 77°33'16", Prince William County, Hydrologic Unit 02070010, on left bank at upstream side of bridge on State Highway 611, 0.5 mi (0.8 km) downstream from Darrels Run, 0.8 mi (1.3 km) downstream from Town Run, and 3.0 mi (4.8 km) southwest of Aden.

DRAINAGE AREA.--155 mi^2 (401 km^2).

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 166.27 ft (50.679 m) above mean sea level.

REMARKS.--Records good except those for period of no gage-height record, Oct. 29 to Dec. 2, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--5 years, 186 ft^3/s (5.268 m^3/s), 16.30 in/yr (414 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,900 ft^3/s (337 m^3/s) Dec. 2, 1974, gage height, 14.43 ft (4.398 m), from rating curve extended above 6,600 ft^3/s (190 m^3/s); minimum, 0.86 ft^3/s (0.024 m^3/s) Sept. 9, 1976.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1972 reached a stage of 21.37 ft (6.514 m), from floodmarks, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,800 ft^3/s (110 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 3	0100	4610	131	10.98	3.347	Oct. 21	0230	3970	112	10.59	3.228
Oct. 9	2230	*10700	303	14.00	4.267	Oct. 26	0830	7950	225	12.94	3.944

Minimum discharge, 1.1 ft^3/s (0.031 m^3/s) Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	400	89	30	13	73	52	20	7.1	2.7	2.2	2.4
2	1080	220	61	26	12	61	54	18	6.7	2.6	2.0	2.6
3	1560	165	51	24	15	52	91	46	6.4	2.6	1.8	2.7
4	183	140	40	25	45	52	87	32	6.0	2.6	1.6	2.4
5	86	118	37	28	93	69	679	31	6.0	2.4	2.2	2.4
6	49	100	36	28	70	62	428	32	6.0	2.2	4.0	5.2
7	33	80	1770	33	24	55	195	60	5.5	2.0	1.8	43
8	71	70	634	28	15	48	138	47	5.0	1.6	1.6	16
9	4090	58	237	27	15	41	102	31	5.8	2.8	1.5	12
10	3580	49	173	31	26	38	87	24	5.5	28	1.6	9.0
11	263	56	179	30	72	36	79	18	5.0	4.5	1.6	6.4
12	153	50	252	22	94	35	71	15	5.2	3.5	2.0	4.2
13	110	64	187	19	139	844	63	14	5.2	4.8	2.6	3.1
14	86	57	116	20	108	692	56	12	5.0	12	4.0	2.9
15	65	45	101	28	77	222	51	11	5.0	3.3	4.0	2.6
16	48	42	108	36	49	149	46	11	4.5	2.2	2.2	2.6
17	46	38	119	25	36	103	41	9.3	4.5	2.0	2.0	2.0
18	71	37	94	20	31	90	37	8.2	4.8	1.8	2.0	1.6
19	46	38	75	17	29	80	36	5.8	5.8	1.6	1.8	1.5
20	772	36	80	17	30	70	33	5.8	5.0	1.6	2.0	1.4
21	1560	33	163	16	27	72	30	6.4	4.0	2.0	1.4	1.3
22	261	32	75	16	26	288	28	6.4	3.5	2.6	1.6	1.3
23	155	31	67	15	30	285	26	6.7	3.5	1.6	1.8	1.4
24	139	28	58	15	54	169	26	6.6	3.5	1.6	2.0	1.4
25	483	26	53	18	203	114	30	7.1	3.5	1.6	2.4	1.4
26	5430	27	66	22	120	93	29	8.2	3.3	2.4	4.2	1.4
27	491	29	71	22	98	80	25	11	3.1	1.8	5.2	1.3
28	272	36	56	22	92	78	22	9.0	3.1	1.6	4.5	1.4
29	200	85	56	28	---	87	21	7.8	3.1	1.8	3.5	1.2
30	160	190	48	20	---	76	22	7.5	2.9	2.0	2.9	1.2
31	840	---	42	15	---	65	---	7.1	---	1.8	2.6	---
TOTAL	22432	2380	5194	723	1643	4277	2685	536.7	143.5	107.6	76.6	138.9
MEAN	724	79.3	168	23.3	58.7	138	89.5	17.2	4.78	3.47	2.47	4.63
MAX	5430	400	1770	36	203	844	679	60	7.1	28	5.2	43
MIN	33	26	36	15	12	35	21	5.8	2.9	1.6	1.4	1.2
CFSM	4.67	.51	1.08	.15	.38	.89	.58	.11	.03	.02	.02	.03
IN.	5.38	.57	1.25	.17	.39	1.03	.64	.13	.03	.03	.02	.03

CAL YR 1976 TOTAL 70384.7 MEAN 192 MAX 7530 MIN 1.1 CFSM 1.24 IN 16.89
WTR YR 1977 TOTAL 40335.3 MEAN 111 MAX 5430 MIN 1.2 CFSM .72 IN 9.68

01656500 BROAD RUN AT BUCKLAND, VA

LOCATION.--Lat 38°46'50", long 77°40'22", Prince William County, Hydrologic Unit 02070010, on right bank at downstream side of bridge on U.S. Highway 29 at Buckland and 1.1 mi (1.8 km) upstream from South Run.

DRAINAGE AREA.--50.5 mi² (130.8 km²).

PERIOD OF RECORD.--July 1950 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 284.58 ft (86.740 m) above mean sea level.

REMARKS.--Records good except those for January and February, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--27 years, 50.2 ft³/s (1.422 m³/s), 13.50 in/yr (343 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,800 ft³/s (476 m³/s) June 21, 1972, gage height, 13.92 ft (4.243 m), from rating curve extended above 3,200 ft³/s (91 m³/s) on basis of slope-area measurements at gage heights 13.08 ft (3.987 m) and 13.92 ft (4.243 m); minimum, 0.20 ft³/s (0.006 m³/s) Oct. 10, 1954.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,400 ft³/s (210 m³/s) at 1130 hours Oct. 9, gage height, 11.58 ft (3.530 m), no other peak above base of 800 ft³/s (23 m³/s); minimum, 1.3 ft³/s (0.037 m³/s) Aug. 1, 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	67	32	15	18	30	36	27	10	3.7	1.6	4.0
2	172	73	30	15	17	28	40	25	9.5	3.4	1.8	3.5
3	210	65	26	17	14	27	57	21	8.8	3.1	2.0	3.5
4	65	60	26	18	15	30	72	21	8.3	2.9	2.0	3.5
5	31	50	25	19	22	42	234	35	7.7	2.8	1.8	3.2
6	27	40	26	20	16	36	156	50	7.7	2.7	4.7	3.2
7	24	39	317	22	14	30	106	44	8.4	2.7	2.6	3.5
8	91	40	152	19	14	26	85	45	8.0	2.7	2.2	4.5
9	2670	38	85	20	15	26	68	29	10	3.0	2.4	4.2
10	376	39	67	22	22	26	61	24	12	3.9	2.6	5.4
11	138	37	44	19	37	26	57	21	6.5	5.0	4.0	4.5
12	96	37	75	17	33	23	50	20	7.4	17	2.9	3.5
13	71	38	60	16	33	226	44	18	6.9	8.0	4.2	3.0
14	57	36	45	17	24	210	40	17	6.9	6.1	2.9	2.9
15	44	33	42	21	26	113	38	16	7.6	4.4	4.0	2.7
16	42	31	44	14	18	47	36	15	6.9	4.3	2.7	2.9
17	45	30	42	15	16	41	32	14	6.6	4.0	2.6	3.7
18	46	33	37	15	16	57	30	14	6.3	3.6	2.6	3.5
19	37	31	33	15	17	51	29	14	6.3	3.4	2.5	3.0
20	190	30	36	16	19	45	26	14	5.6	3.7	2.3	4.0
21	193	28	37	17	18	45	26	14	5.5	4.2	2.1	4.5
22	88	28	26	15	16	152	26	12	6.3	3.7	2.0	3.7
23	62	28	27	16	14	142	26	12	5.6	3.2	1.8	3.2
24	65	26	25	16	36	96	26	12	5.2	5.4	52	2.9
25	111	28	24	18	57	73	36	13	4.9	16	14	2.9
26	243	28	24	19	39	66	30	14	5.6	9.4	5.6	3.0
27	113	35	27	20	37	55	26	12	5.4	2.6	4.7	3.6
28	84	35	26	21	36	58	25	11	4.7	1.7	4.0	3.6
29	71	45	24	18	---	64	25	10	4.4	1.6	2.9	3.6
30	65	44	22	17	---	51	23	9.1	4.1	1.6	4.1	3.0
31	174	---	18	17	---	45	---	9.5	---	1.7	5.2	---
TOTAL	5812	1208	1544	551	671	2037	1580	604.6	217.1	141.9	150.5	106.6
MEAN	187	40.3	49.8	17.8	24.0	65.7	52.7	19.5	7.24	4.58	4.85	3.55
MAX	2670	67	317	22	57	226	234	50	12	17	52	5.4
MIN	24	26	18	14	14	23	23	9.1	4.1	1.6	1.6	2.7
CFSM	3.71	.80	.99	.35	.48	1.30	1.04	.39	.14	.09	.10	.07
IN.	4.28	.89	1.14	.41	.49	1.50	1.16	.45	.16	.10	.11	.08

CAL YR 1976 TOTAL 23066.6 MEAN 63.0 MAX 2670 MIN 5.6 CFSM 1.25 IN 16.99
WTR YR 1977 TOTAL 14620.7 MEAN 40.1 MAX 2670 MIN 1.6 CFSM .79 IN 10.77

01656650 BROAD RUN NEAR BRISTOW, VA

LOCATION.--Lat 38°44'56", long 77°33'50", Prince William County, Hydrologic Unit 02070010, on left bank 50 ft (15 m) downstream from bridge on State Highway 619, 0.2 mi (0.3 km) upstream from Dawkins Branch, 1.9 mi (3.1 km) downstream from Rocky Branch, and 2.3 mi (3.7 km) northwest of Bristow.

DRAINAGE AREA.--89.6 mi² (232.1 km²).

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 185 ft (56.4 m), from topographic map.

REMARKS.--Records good. Town of Manassas diverts about 3.0 ft³/s (0.085 m³/s) daily from municipal water-supply reservoir 6.0 mi (9.7 km) upstream. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,800 ft³/s (221 m³/s) Oct. 9, 1976, gage height, 16.11 ft (4.910 m), from rating curve extended above 4,100 ft³/s (120 m³/s); minimum, 0.90 ft³/s (0.025 m³/s) Sept. 30, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 900 ft³/s (25 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 2	2200	968	27.4	5.90	1.798	Oct. 9	2000	*7800	221	16.11	4.910

Minimum discharge, 0.90 ft³/s (0.025 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	186	100	25	12	50	89	26	4.8	4.2	2.6	23
2	252	186	90	17	12	51	56	26	5.1	4.2	2.2	20
3	686	137	117	15	10	60	62	28	4.8	4.5	2.0	9.0
4	251	123	115	16	14	62	105	28	6.5	4.0	2.1	3.0
5	171	112	112	19	26	50	318	28	5.1	5.1	2.2	2.1
6	130	92	108	26	22	88	310	32	5.1	6.0	2.2	2.0
7	113	89	507	31	17	43	208	43	8.5	5.1	2.2	2.1
8	169	113	420	25	12	47	150	36	12	5.7	2.2	2.4
9	3630	76	204	23	10	36	115	35	15	6.5	1.6	2.0
10	1860	86	142	33	15	31	98	17	15	5.4	2.0	1.8
11	350	66	125	30	33	25	41	9.0	16	5.4	1.5	1.5
12	210	65	144	27	52	26	59	8.5	14	5.7	1.5	1.2
13	162	105	140	22	63	262	62	8.5	12	5.7	1.5	1.1
14	137	78	95	18	53	161	58	10	10	7.5	2.2	1.1
15	191	75	80	27	40	180	48	9.5	8.5	5.4	4.0	1.1
16	98	75	76	27	37	171	65	9.5	8.0	4.5	5.6	1.2
17	89	66	80	24	29	115	39	9.0	7.5	4.0	4.0	1.2
18	195	76	72	23	19	93	36	8.5	9.5	3.9	4.0	1.1
19	67	69	58	19	14	91	33	8.0	12	3.9	4.0	1.1
20	311	59	57	15	23	67	30	9.5	12	3.9	4.0	2.1
21	565	58	70	16	23	88	26	7.5	12	3.8	7.0	1.5
22	250	67	26	13	16	130	26	6.0	12	3.8	7.0	1.5
23	190	62	26	12	16	103	20	5.7	11	2.8	4.5	1.3
24	175	66	26	13	36	171	29	5.6	10	3.3	18	1.3
25	300	68	19	14	108	120	26	5.7	8.5	3.6	66	1.3
26	206	61	31	19	101	93	26	6.5	8.5	2.7	21	1.3
27	321	62	33	25	82	75	26	7.0	7.5	2.6	19	1.5
28	192	88	27	19	88	72	25	7.0	5.7	2.6	4.5	1.8
29	151	100	33	14	---	88	27	5.6	4.2	2.6	2.7	1.5
30	132	100	30	15	---	90	25	5.7	4.2	2.7	3.0	1.2
31	195	---	29	16	---	98	---	5.6	---	2.6	7.5	---
TOTAL	11971	2746	3192	630	991	2875	2250	448.3	275.0	133.7	206.2	94.3
MEAN	386	91.5	103	20.3	35.4	92.7	75.0	14.5	9.17	4.31	6.65	3.14
MAX	3630	186	507	33	108	262	318	43	16	7.5	66	23
MIN	38	58	19	12	10	25	20	5.6	4.2	2.6	1.5	1.1
CFSM	4.31	1.02	1.15	.23	.40	1.03	.84	.16	.10	.05	.07	.04
IN.	4.97	1.14	1.33	.26	.41	1.19	.93	.19	.11	.06	.09	.04

CAL YR 1976 TOTAL 37366.4 MEAN 102 MAX 3630 MIN 3.0 CFSM 1.14 IN 15.46
WTR YR 1977 TOTAL 25712.5 MEAN 70.4 MAX 3630 MIN 1.1 CFSM .79 IN 10.68

01656790 OCCOQUAN RIVER NEAR MANASSAS, VA

LOCATION.--Lat 38°42'19", long 77°26'46", Prince William County, Hydrologic Unit 02070010, on right bank 200 ft (61 m) downstream from bridge on State Highway 234 at Lake Jackson, 3.3 mi (5.3 km) southeast of Manassas, and 3.7 mi (6.0 km) upstream from Bull Run.

DRAINAGE AREA.--343 mi² (888 km²).

PERIOD OF RECORD.--April 1968 to current year. Prior to October 1970 published as Occoquan Creek near Manassas.

REVISED RECORDS.--WDR VA-76-1: 1972-75.

GAGE.--Water-stage recorder. Datum of gage is 119.55 ft (36.635 m) above mean sea level.

REMARKS.--Records good except those for period of no gage-height record, Oct. 9-10, which are fair. Some diurnal fluctuation caused by Lake Jackson Dam, 650 ft (198 m) upstream from station. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--9 years, 415 ft³/s (11.75 m³/s), 16.43 in/yr (417 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 57,600 ft³/s (1,630 m³/s) June 22, 1972, gage height, 40.31 ft (12.286 m), from floodmarks; minimum, 0.02 ft³/s (<0.001 m³/s) Oct. 11, 1976, result of impounding at dam 650 ft (198 m) above gage.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,500 ft³/s (160 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 10	Unknown	*12500	354	19.17	5.538	Oct. 26	0830	7600	215	12.97	3.953

Minimum discharge, 0.02 ft³/s (<0.001 m³/s) Oct. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68	1070	197	99	59	190	161	50	16	8.9	14	4.3
2	804	521	138	97	57	161	145	56	14	8.4	14	26
3	3860	383	124	89	59	136	236	72	13	8.4	6.9	24
4	881	319	92	87	87	125	245	81	11	8.4	6.0	9.3
5	279	268	85	96	145	150	1340	77	13	8.4	6.0	8.4
6	158	232	80	99	114	164	1480	144	13	8.4	6.9	5.2
7	104	179	1960	119	87	167	640	268	12	8.0	6.4	19
8	165	166	2340	108	66	134	420	215	11	8.0	6.4	38
9	4600	140	680	100	60	110	315	145	25	8.0	6.7	21
10	9900	119	434	108	72	99	295	102	26	23	6.4	16
11	436	122	390	110	120	92	225	72	20	27	8.0	12
12	420	118	540	90	175	89	188	53	18	19	5.2	8.6
13	298	129	483	80	225	1370	168	43	17	16	5.2	6.9
14	221	127	299	80	221	1910	152	41	18	13	14	6.0
15	162	112	245	93	188	775	137	38	18	17	19	9.2
16	125	106	248	100	149	483	123	34	18	10	11	5.6
17	112	99	262	94	121	334	110	31	19	6.9	4.6	6.4
18	131	91	236	81	100	262	100	27	34	5.6	4.6	6.0
19	118	94	199	73	94	236	93	23	23	5.2	4.0	9.2
20	747	91	186	68	96	190	87	21	23	8.0	4.0	9.2
21	3220	82	320	65	100	190	80	20	22	10	7.3	3.9
22	730	78	219	62	94	665	76	18	15	13	7.3	2.7
23	393	88	164	63	96	1270	71	16	14	9.3	7.3	2.7
24	299	69	192	67	126	940	72	15	13	6.9	14	2.7
25	820	64	134	68	388	356	97	21	13	7.3	28	2.7
26	7100	66	161	74	310	273	89	20	14	13	17	3.0
27	2380	69	177	78	258	227	78	20	13	9.3	10	3.4
28	840	72	161	80	250	208	71	21	12	7.3	9.3	2.7
29	646	182	154	85	---	236	67	18	10	6.0	4.0	1.6
30	355	387	133	89	---	221	62	15	8.0	6.0	6.0	2.0
31	1810	---	133	66	---	198	---	15	---	6.0	4.7	---
TOTAL	40698	5632	11117	2650	3925	11547	7381	1800	496.0	306.3	244.2	259.7
MEAN	1313	188	359	85.5	140	372	246	58.1	16.5	9.88	7.88	8.66
MAX	9900	1070	2340	110	388	1910	1480	268	34	27	28	38
MIN	68	64	80	60	57	89	62	15	8.0	5.2	4.7	1.6
CFSM	3.83	.55	1.05	.25	.41	1.09	.72	.17	.05	.03	.03	.03
IN.	4.41	.61	1.21	.29	.43	1.25	.80	.20	.05	.03	.03	.03

CAL YR 1976 TOTAL 146359.8 MEAN 400 MAX 10900 MIN 3.7 CFSM 1.17 IN 15.87
WTR YR 1977 TOTAL 86106.2 MEAN 236 MAX 9900 MIN 1.6 CFSM .69 IN 9.34

01656725 BULL RUN NEAR CATHARPIN, VA

LOCATION.--Lat 38°53'21", long 77°34'14", Prince William County, Hydrologic Unit 02070010, on right bank 20 ft (6 m) downstream from bridge on State Highway 705, 0.7 mi (1.1 km) downstream from Chestnut Lick, 2.5 mi (4.0 km) north of Catharpin, and 6.7 mi (10.8 km) northeast of Gainesville.

DRAINAGE AREA.--25.8 mi^2 (66.8 km^2).

PERIOD OF RECORD.--May 1969 to current year. Prior to October 1970, published as "on State Highway 705."

REVISED RECORDS.--WDR VA-75-1: 1974(P).

GAGE.--Water-stage recorder. Datum of gage is 237.78 ft (72.475 m) above mean sea level.

REMARKS.--Records good except those for January and February, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--8 years, 35.5 ft^3/s (1.005 m^3/s), 18.69 in/yr (475 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,400 ft^3/s (1,120 m^3/s) June 22, 1972, gage height, 18.92 ft (5.767 m), from floodmarks, from rating curve extended above 3,000 ft^3/s (85 m^3/s) on basis of slope-area measurement of peak flow; no flow Sept. 8 to Oct. 10, 1970, July 5-9, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 820 ft^3/s (23 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 9	1130	*3410	96.6	8.62	2.627	Mar. 13	Unknown	1260	35.7	5.73	1.747
Dec. 7	0930	968	27.4	5.25	1.600						

No flow July 5-9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.7	44	9.8	3.2	2.8	11	13	5.8	5.2	.09	.02	1.2
2	66	30	9.4	2.9	2.8	9.0	27	5.8	5.2	.07	.03	.80
3	70	26	8.3	2.8	2.8	7.6	27	6.6	2.6	.03	.05	.28
4	15	22	7.2	2.8	3.0	13	61	7.2	.62	.01	.07	.16
5	7.7	18	6.9	2.9	3.8	18	231	14	.20	.00	.06	.12
6	5.5	16	7.2	3.0	4.2	14	85	8.7	.46	.00	.10	.10
7	4.6	16	270	3.1	3.8	12	47	13	4.8	.00	.16	.10
8	68	14	65	3.1	3.6	9.8	34	12	4.0	.00	.12	.09
9	1050	13	30	3.1	4.1	8.3	27	6.2	5.5	.00	.80	.08
10	99	14	24	3.0	5.0	8.0	24	5.8	9.0	.05	.28	.72
11	39	13	25	3.1	7.7	7.6	22	4.5	6.2	1.4	.18	.95
12	27	12	33	3.1	11	7.2	20	3.4	4.0	7.8	.20	.28
13	20	12	22	3.0	12	309	17	2.8	1.6	12	.18	.16
14	16	11	16	3.1	9.0	126	16	2.6	.62	2.0	.16	.11
15	14	11	16	3.6	8.0	48	15	2.3	.62	.16	.37	.10
16	12	11	17	3.3	7.0	31	14	1.6	1.6	.10	.62	.09
17	13	9.8	16	3.1	6.6	22	12	1.6	1.4	.08	.20	.09
18	14	9.8	14	2.9	6.6	23	12	2.0	.62	.06	.16	.09
19	11	9.8	12	2.8	[illegible].2	20	11	2.8	.46	.04	.11	.09
20	187	9.4	13	2.8	7.2	19	10	2.8	2.0	.30	.09	10
21	96	9.0	13	2.9	6.2	18	9.4	2.6	12	.62	.07	1.8
22	34	9.0	12	2.8	6.2	218	9.0	1.8	5.5	.10	.04	.28
23	23	8.3	11	2.8	7.2	72	8.0	1.4	1.6	.08	.03	.18
24	30	8.0	8.7	2.8	20	38	8.3	1.2	.46	.04	51	.14
25	84	8.0	7.6	3.0	29	27	14	3.7	.28	.03	9.8	.11
26	176	8.0	7.6	3.3	17	22	9.8	6.2	.46	.07	1.2	.12
27	47	8.7	7.0	3.3	15	20	9.8	4.0	1.2	.04	.20	.18
28	33	9.0	6.0	3.2	14	24	7.6	2.3	.46	.02	.16	.46
29	27	23	5.0	3.0	---	24	8.0	1.4	.20	.02	.11	.20
30	23	15	4.2	2.9	---	19	6.9	1.2	.11	.03	.10	.16
31	148	---	3.5	2.9	---	16	---	1.4	---	.02	.66	---
TOTAL	2467.5	427.8	707.4	93.6	231.8	1221.5	815.8	138.7	78.97	25.26	67.33	19.24
MEAN	79.6	14.3	22.8	3.02	8.28	39.4	27.2	4.47	2.63	.81	2.17	.64
MAX	1050	44	270	3.6	29	309	231	14	12	12	51	10
MIN	4.6	8.0	3.5	2.8	2.8	7.2	6.9	1.2	.11	.00	.02	.08
CFSM	3.09	.55	.88	.12	.32	1.53	1.05	.17	.10	.03	.08	.03
IN.	3.56	.62	1.02	.13	.33	1.76	1.18	.20	.11	.04	.10	.03

CAL YR 1976 TOTAL 10129.25 MEAN 27.7 MAX 1050 MIN .01 CFSM 1.07 IN 14.60
WTR YR 1977 TOTAL 6294.90 MEAN 17.2 MAX 1050 MIN .00 CFSM .67 IN 9.08

01656960 CUB RUN NEAR BULL RUN, VA

LOCATION.--Lat 38°49'16", long 77°27'57", Fairfax County, Hydrologic Unit 02070010, on right bank 20 ft (6 m) downstream from bridge on State Highway 658, 0.6 mi (1.0 km) downstream from Big Rocky Run, 1.2 mi (1.9 km) southeast of Bull Run, and 2.3 mi (3.7 km) upstream from mouth.

DRAINAGE AREA.--49.9 mi^2 (129.2 km^2).

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 151.54 ft (46.189 m) above mean sea level.

REMARKS.--Records good except those for January, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--5 years, 58.6 ft^3/s (1.660 m^3/s), 15.95 in/yr (405 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,980 ft^3/s (254 m^3/s) Sept. 26, 1975, gage height, 15.63 ft (4.764 m), from rating curve extended above 4,100 ft^3/s (120 m^3/s); minimum, 1.[illegible] ft^3/s (0.040 m^3/s) Oct. 27, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1972 reached a stage of 28.64 ft (8.729 m), from floodmarks, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,2[illegible]0 ft^3/s (64.3 m^3/s) at 1930 hours Oct. 9, gage height, 10.94 ft (3.335 m), no other peak above base of 1,500 ft^3/s (42 m^3/s); minimum, 2.1 ft^3/s (0.059 m^3/s) July 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	99	18	9.0	6.0	18	16	8.0	4.2	2.9	7.0	52
2	80	52	16	7.4	5.6	16	29	7.7	4.2	2.5	8.9	7.3
3	180	35	15	6.0	5.6	15	69	7.7	3.8	2.9	7.2	6.2
4	49	31	14	6.0	6.1	14	48	8.0	3.6	2.5	6.5	5.6
5	17	24	14	6.4	7.8	17	424	10	3.5	2.3	9.2	7.8
6	12	21	13	6.4	8.3	17	179	12	4.2	2.4	8.5	19
7	10	19	454	6.8	7.4	15	65	18	4.8	2.4	8.8	8.0
8	16	18	173	6.6	7.0	14	42	14	3.8	2.8	7.5	5.9
9	1010	18	65	6.2	8.4	13	26	8.9	5.4	5.2	15	5.4
10	236	17	44	6.4	10	11	22	7.7	5.6	4.7	13	8.0
11	28	17	39	6.6	17	11	19	7.3	4.2	6.9	8.6	4.7
12	15	17	61	6.2	20	10	18	7.0	3.4	35	6.4	4.1
13	12	17	55	6.0	23	284	16	6.5	2.8	76	6.0	3.2
14	11	17	30	6.4	18	340	15	6.5	2.7	14	11	2.8
15	10	16	27	7.4	16	81	15	6.2	2.7	10	8.9	3.2
16	8.9	16	21	8.0	14	48	14	5.9	2.7	8.8	7.7	3.4
17	9.3	15	21	7.2	12	29	13	5.4	4.8	8.0	7.0	3.6
18	11	15	19	6.4	11	24	13	5.3	5.0	7.8	6.7	3.4
19	9.5	15	17	5.8	11	27	12	5.3	3.6	7.2	6.2	3.0
20	170	15	17	5.8	11	22	12	5.4	9.6	9.8	5.9	6.1
21	320	15	20	6.0	11	27	11	5.2	12	9.6	6.4	4.8
22	50	14	16	6.0	11	290	11	4.8	6.4	8.1	10	4.0
23	22	14	16	5.8	11	172	11	4.7	4.8	6.9	8.5	3.4
24	19	14	15	5.8	20	65	17	4.6	4.1	6.2	53	3.5
25	105	14	14	6.7	83	39	18	5.9	4.0	7.3	62	3.6
26	528	14	15	7.2	39	27	10	5.6	3.8	9.6	11	4.0
27	102	14	15	7.4	24	22	8.9	5.0	3.5	7.3	8.3	3.6
28	58	14	14	7.6	24	21	8.5	4.7	3.5	6.7	6.9	4.4
29	41	26	13	7.8	---	31	8.8	4.4	4.8	6.2	6.2	4.0
30	35	38	12	6.9	---	22	8.3	4.0	3.8	6.2	5.9	3.4
31	263	---	10	6.4	---	19	---	3.8	---	5.9	23	---
TOTAL	3451.7	671	1288	206.6	448.2	1761	1179.5	215.5	135.3	294.1	367.2	201.4
MEAN	111	22.4	41.5	6.66	16.0	56.8	39.3	6.95	4.51	9.49	11.8	6.71
MAX	1010	99	454	9.0	83	340	424	18	12	76	62	52
MIN	8.9	14	10	5.8	5.6	10	8.3	3.8	2.7	2.3	5.9	2.8
CFSM	2.22	.45	.83	.13	.32	1.14	.79	.14	.09	.19	.24	.13
IN.	2.57	.50	.96	.15	.33	1.31	.88	.16	.10	.22	.27	.15

CAL YR 1976 TOTAL 18743.0 MEAN 51.2 MAX 2650 MIN 1.9 CFSM 1.03 IN 13.97
WTR YR 1977 TOTAL 10219.5 MEAN 28.0 MAX 1010 MIN 2.3 CFSM .56 IN 7.62

01657000 BULL RUN NEAR MANASSAS, VA

LOCATION.--Lat 38°47'50", long 77°27'28", Fairfax County, Hydrologic Unit 02070010, on left bank at upstream side of bridge on State Highway 616, 0.5 mi (0.8 km) downstream from Cub Run, and 3.2 mi (5.1 km) north of Manassas.

DRAINAGE AREA.--148 mi^2 (383 km^2).

PERIOD OF RECORD.--October 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 138.76 ft (42.294 m) above mean sea level. Prior to Dec. 14, 1967, at downstream side of former highway bridge at same datum.

REMARKS.--Records good except those for January, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--27 years, 153 ft^3/s (4.333 m^3/s), 14.04 in/yr (357 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 76,100 ft^3/s (2,160 m^3/s) June 22, 1972, gage height, 37.80 ft (11.521 m), from floodmarks, from rating curve extended above 10,600 ft^3/s (300 m^3/s) on basis of contracted-opening measurement at gage height 19.27 ft (5.873 m) and slope-area measurement of peak flow; minimum, 0.10 ft^3/s (0.003 m^3/s) many days in September 1954, and Oct. 14, 1954; minimum gage height, 0.96 ft (0.293 m) July 15, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,880 ft^3/s (251 m^3/s) at 2400 hours Oct. 9, gage height, 15.93 ft (4.855 m), no other peak above base of 4,000 ft^3/s (110 m^3/s); minimum, 3.2 ft^3/s (0.091 m^3/s) Aug. 21, gage height, 1.16 ft (0.354 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	328	51	27	18	67	59	24	9.3	6.7	8.8	99
2	317	172	38	21	17	54	80	22	10	5.6	11	13
3	690	128	31	20	19	47	181	22	9.3	5.6	8.9	24
4	160	112	30	22	26	45	146	32	8.5	5.4	8.2	13
5	75	91	22	23	31	70	1360	46	8.5	4.7	13	7.8
6	46	73	20	23	30	67	655	64	8.5	5.4	12	43
7	33	62	1480	24	24	56	232	86	10	5.4	10	15
8	126	54	641	26	17	49	160	79	8.9	4.2	9.0	10
9	3190	44	203	23	18	42	116	46	16	9.3	22	7.8
10	3130	42	146	24	23	36	96	29	16	8.2	26	16
11	237	39	137	26	45	34	86	25	13	23	10	7.4
12	134	38	188	23	71	31	77	24	12	57	7.8	6.1
13	98	38	170	20	80	952	67	21	11	180	6.7	5.6
14	71	35	98	21	70	1330	60	19	10	50	15	4.7
15	54	32	83	29	60	292	54	17	9.6	22	13	4.7
16	42	31	82	30	51	176	49	17	9.3	16	7.4	5.4
17	40	27	80	27	48	120	45	15	9.6	12	6.1	5.6
18	48	25	65	21	36	100	42	14	17	10	5.4	5.2
19	36	24	56	18	26	103	42	13	8.9	9.0	5.2	4.7
20	595	23	56	18	27	84	36	12	32	20	4.0	9.3
21	1350	21	66	19	30	93	34	11	40	16	3.8	13
22	230	21	50	20	28	912	32	11	23	12	8.2	11
23	131	19	44	19	28	627	29	12	15	10	7.4	7.8
24	113	17	42	19	53	212	50	11	11	8.0	73	6.7
25	397	17	41	25	197	140	57	16	9.6	14	227	6.1
26	1980	16	40	26	118	110	40	15	9.3	24	38	6.1
27	364	19	42	27	90	90	32	15	8.2	12	16	6.1
28	192	21	39	28	87	88	30	14	7.8	9.6	10	6.3
29	140	75	37	29	---	119	30	12	9.3	8.4	7.4	6.3
30	119	116	34	21	---	91	27	10	8.2	7.6	6.3	5.8
31	920	---	27	19	---	75	---	9.6	---	7.2	7.4	---
TOTAL	15105	1760	4139	718	1368	6312	4004	763.6	378.8	588.3	614.0	382.5
MEAN	487	58.7	134	23.2	48.9	204	133	24.6	12.6	19.0	19.8	12.8
MAX	3190	328	1480	30	197	1330	1360	86	40	180	227	99
MIN	33	16	20	18	17	31	27	9.6	7.8	4.2	3.8	4.7
CFSM	3.29	.40	.91	.16	.33	1.38	.90	.17	.09	.13	.13	.09
IN.	3.80	.44	1.04	.18	.34	1.59	1.01	.19	.10	.15	.15	.10

CAL YR 1976 TOTAL 62137.8 MEAN 170 MAX 7490 MIN 3.2 CFSM 1.15 IN 15.62
WTR YR 1977 TOTAL 36133.2 MEAN 99.0 MAX 3190 MIN 3.8 CFSM .67 IN 9.08

01657415 BULL RUN NEAR CLIFTON, VA

LOCATION.--Lat 38°46'01", long 77°24'54", Fairfax County, Hydrologic Unit 02070010, on left bank 0.4 mi (0.6 km) downstream from Popes Head Creek, 1.6 mi (2.6 km) upstream from Buckhall Branch, and 1.8 mi (2.9 km) southwest of Clifton.

DRAINAGE AREA.--185 mi² (479 km²).

PERIOD OF RECORD.--September 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 123.83 ft (37.743 m) above mean sea level.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--5 years, 227 ft³/s (6.429 m³/s), 16.66 in/yr (423 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 ft³/s (623 m³/s) Sept. 26, 1975, gage height, 19.52 ft (5.950 m), from rating curve extended above 400 ft³/s (11 m³/s) on basis of runoff comparison with upstream station near Manassas; minimum, 5.8 ft³/s (0.16 m³/s) Aug. 30, 1976.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1972 reached a stage of about 35 ft (10.7 m), discharge, about 80,000 ft³/s (2,300 m³/s), from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,910 ft³/s (252 m³/s) at 0230 hours Oct. 10, gage height, 12.07 ft (3.679 m), no other peak above base of 4,200 ft³/s (120 m³/s); minimum, 7.8 ft³/s (0.22 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	461	89	46	30	102	94	44	21	17	13	100
2	316	260	73	43	30	83	132	40	21	16	17	24
3	668	191	61	42	32	73	279	40	19	15	13	19
4	224	165	57	46	39	78	213	44	18	16	12	29
5	101	139	51	49	48	95	1130	83	18	16	11	14
6	59	114	49	46	43	98	790	112	19	16	17	34
7	43	102	1150	51	36	86	362	172	20	16	18	19
8	72	92	695	48	31	74	254	160	19	17	15	16
9	2600	80	285	46	31	63	185	88	26	17	19	12
10	3860	77	204	50	37	56	150	58	33	23	38	16
11	308	76	191	49	61	53	137	50	27	31	23	12
12	178	73	263	41	94	51	120	44	24	60	17	9.3
13	126	73	248	37	118	838	104	42	22	214	15	9.3
14	98	70	153	39	105	1270	94	38	21	57	25	9.0
15	77	65	128	48	89	431	86	34	20	28	33	8.6
16	66	63	128	54	72	272	77	31	19	19	19	9.0
17	63	58	128	44	57	188	72	30	19	16	15	10
18	73	54	109	41	49	153	66	29	47	13	14	9.7
19	65	53	92	36	48	155	65	27	22	12	12	9.0
20	504	52	90	34	49	128	57	26	58	24	12	10
21	1180	50	128	34	46	137	53	26	80	25	11	12
22	337	49	84	34	46	778	50	25	38	25	13	15
23	191	46	86	32	50	792	48	23	26	14	16	11
24	150	45	70	33	80	344	65	23	21	11	93	9.7
25	472	44	63	37	292	230	185	29	19	12	261	8.6
26	2110	42	73	40	185	180	84	30	19	36	57	8.4
27	512	45	77	41	139	144	61	28	18	16	26	8.4
28	298	49	74	43	132	137	52	26	17	12	18	8.4
29	213	102	73	44	---	183	54	24	17	11	14	8.4
30	175	170	58	36	---	144	49	22	19	11	13	8.1
31	869	---	61	32	---	116	---	21	---	10	46	---
TOTAL	16071	2960	5091	1296	2069	7524	5148	1469	767	826	926	476.9
MEAN	518	98.7	164	41.8	73.9	243	172	47.4	25.6	26.6	29.9	15.9
MAX	3860	461	1150	54	292	1270	1130	172	80	214	261	100
MIN	43	42	49	32	30	51	48	21	17	10	11	8.1
CFSM	2.80	.53	.89	.23	.40	1.31	.93	.26	.14	.14	.16	.09
IN.	3.23	.60	1.02	.26	.42	1.51	1.04	.30	.15	.17	.19	.10

CAL YR 1976 TOTAL 75228.2 MEAN 206 MAX 8800 MIN 6.2 CFSM 1.11 IN 15.13
WTR YR 1977 TOTAL 44623.9 MEAN 122 MAX 3860 MIN 8.1 CFSM .66 IN 8.97

01657655 HOOES RUN NEAR OCCOQUAN, VA

LOCATION.--Lat 38°40'48", long 77°17'25", Prince William County, Hydrologic Unit 02070010, on left bank 900 ft (274 m) upstream from bridge on State Highway 641, 0.9 mi (1.4 km) downstream from Lake Omiscol, and 1.6 mi (2.6 km) west of Occoquan.

DRAINAGE AREA.--3.97 mi² (10.28 km²).

PERIOD OF RECORD.--November 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 125 ft (38.1 m), from topographic map.

REMARKS.--Records good except those for January and February, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,280 ft³/s (36.2 m³/s) Sept. 26, 1975, gage height, 8.18 ft (2.493 m), from rating curve extended above 70 ft³/s (2.0 m³/s) on basis of velocity-area study; minimum, 0.01 ft³/s (<0.001 m³/s) Sept. 11, 12, 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 270 ft³/s (7.65 m³/s) at 1800 hours May 6, gage height, 3.86 ft (1.177 m), no other peak above base of 200 ft³/s (5.7 m³/s); minimum, 0.02 ft³/s (<0.001 m³/s) July 7, Sept. 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	8.2	1.3	1.4	.80	2.5	2.9	.34	.24	.08	1.6	.10
2	13	5.6	1.6	.80	1.0	2.5	3.7	.93	.34	.06	.50	.10
3	11	3.5	1.6	.77	1.2	2.3	3.7	1.4	.62	.03	.15	1.1
4	3.4	3.1	1.8	.82	1.4	2.1	3.7	5.0	.28	.03	.04	.62
5	1.5	2.3	1.8	.82	.62	2.3	9.0	3.3	.24	.03	.27	.34
6	1.2	2.0	1.7	.88	.52	2.0	6.7	33	.24	.03	.14	.16
7	.73	1.8	23	.84	.47	2.1	5.6	17	.16	.32	.06	.13
8	.51	1.8	8.6	.90	.41	1.8	3.1	6.4	.13	.21	.05	.08
9	3.8	1.7	5.6	.95	.70	1.8	2.8	4.1	2.7	.29	.05	.16
10	4.8	2.1	4.1	1.0	1.3	1.7	3.3	2.7	1.8	.08	.13	.10
11	3.0	3.3	3.9	.90	1.8	2.0	1.9	1.8	1.1	.24	.08	.06
12	1.3	5.6	6.5	.88	2.7	1.8	2.9	1.6	.71	1.9	.03	.04
13	.73	3.3	4.7	.93	3.3	7.1	3.2	1.4	.54	.71	.06	.04
14	.62	1.1	3.7	1.0	2.9	5.8	3.5	1.3	.40	.34	13	.12
15	1.2	1.2	2.1	1.1	2.4	3.9	1.7	1.2	.34	.24	1.2	.46
16	.86	1.1	1.3	1.3	2.0	3.3	3.5	.80	.28	.13	.54	.28
17	1.3	2.2	1.2	1.1	1.7	2.9	2.1	.62	7.3	.10	.28	.16
18	1.5	1.7	.93	.90	1.4	2.7	1.6	.62	5.3	.10	.16	.10
19	1.3	1.8	1.3	1.0	1.5	2.5	1.4	.80	2.5	.08	.10	.08
20	20	2.1	2.4	1.1	1.6	2.5	1.3	.46	2.4	.25	.06	.08
21	16	1.8	2.9	1.0	1.4	2.3	1.3	.28	1.1	.13	.04	.06
22	4.0	1.7	2.9	.90	1.3	7.1	1.2	.40	.46	.08	.04	.04
23	1.4	1.3	3.9	1.0	1.7	5.6	1.1	.54	.34	.04	.04	.04
24	1.5	1.7	4.4	1.1	3.6	3.5	1.9	.40	.34	.04	4.5	.04
25	11	1.3	5.8	1.2	3.5	3.3	2.5	2.0	.20	.09	1.7	.04
26	41	1.4	8.4	1.3	2.7	3.7	2.0	1.6	.20	.21	.71	.10
27	7.4	1.7	4.4	1.4	2.0	3.7	1.2	1.1	.16	.12	.46	.03
28	4.7	.80	3.7	1.4	1.8	3.1	1.6	.62	.13	.05	.24	.03
29	3.9	1.1	3.1	1.4	---	3.1	1.3	.71	.10	.04	.20	.02
30	3.7	1.2	2.7	1.0	---	2.9	.46	.40	.10	.04	.10	.02
31	16	---	2.5	.75	---	2.9	---	.28	---	.25	.10	---
TOTAL	184.33	69.90	123.83	32.43	47.72	96.8	82.16	93.10	30.75	6.34	26.63	4.73
MEAN	5.95	2.33	3.99	1.05	1.70	3.12	2.74	3.00	1.03	.20	.86	.16
MAX	41	8.2	23	1.4	3.6	7.1	9.0	33	7.3	1.9	13	1.1
MIN	.51	.80	.93	.75	.41	1.7	.46	.28	.10	.03	.03	.02
CFSM	1.50	.59	1.01	.26	.43	.79	.69	.76	.26	.05	.22	.04
IN.	1.73	.65	1.16	.30	.45	.91	.77	.87	.29	.06	.25	.04

CAL YR 1976 TOTAL 1557.24 MEAN 4.25 MAX 116 MIN .01 CFSM 1.07 IN 14.59
WTR YR 1977 TOTAL 798.72 MEAN 2.19 MAX 41 MIN .02 CFSM .55 IN 7.48

01658500 SOUTH FORK QUANTICO CREEK NEAR INDEPENDENT HILL, VA

LOCATION.--Lat 38°35'14", long 77°25'44", Prince William County, Hydrologic Unit 02070011, on left bank at upstream side of bridge on State Highway 619, 3.4 mi (5.5 km) south of Independent Hill, 5.6 mi (9.0 km) west of Dumfries, and 6.5 mi (10.5 km) upstream from mouth.

DRAINAGE AREA.--7.64 mi² (19.79 km²).

PERIOD OF RECORD.--May 1951 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 238.88 ft (72.811 m) above mean sea level.

REMARKS.--Records good except those for January and February, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--26 years, 6.81 ft³/s (0.193 m³/s), 12.10 in/yr (307 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,940 ft³/s (112 m³/s) June 21, 1972, gage height, 11.35 ft (3.459 m); no flow at times in 1954, 1957, 1962-66.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.7 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 20	2245	248	7.02	5.69	1.734	Oct. 26	0215	*579	16.40	7.36	2.243

Minimum daily discharge, 0.05 ft³/s (0.001 m³/s) Sept. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	11	3.3	2.4	1.7	3.6	3.8	2.3	.77	.22	.30	.06
2	64	5.8	3.2	2.0	1.5	3.3	8.3	2.6	.62	.20	.22	.09
3	21	4.6	2.6	1.7	1.4	3.1	8.9	3.4	.52	.16	.17	.14
4	5.3	3.8	2.4	1.4	2.1	3.4	11	3.1	.41	.12	.16	.05
5	2.5	3.2	2.3	1.2	2.9	3.5	32	3.3	.37	.12	.12	.08
6	1.6	2.8	2.3	1.4	2.5	3.2	13	4.1	.49	.12	.16	.16
7	2.2	2.7	53	1.5	2.1	3.0	7.9	6.6	.49	.14	.17	.27
8	1.1	2.5	16	1.4	1.7	3.0	6.4	3.6	.35	.22	.13	.19
9	35	2.3	6.9	1.5	2.1	3.0	5.1	2.3	.76	.28	.15	.15
10	7.1	2.6	5.3	1.7	3.1	2.9	4.7	2.0	.77	.25	.15	.16
11	2.8	2.3	5.3	1.6	4.9	2.8	4.6	1.9	.54	.40	.16	.16
12	1.8	2.6	7.0	1.5	6.3	2.8	4.1	1.6	.38	.39	.18	.12
13	1.5	3.0	5.1	2.2	8.2	38	3.9	1.5	.34	.58	.18	.13
14	1.3	2.8	3.8	3.0	6.0	19	3.8	1.4	.38	1.3	.16	.13
15	1.1	2.8	3.8	4.0	5.1	8.6	3.4	1.2	.45	.37	.16	.21
16	.95	2.5	3.8	2.5	4.0	6.3	3.3	1.1	.46	.26	.11	.18
17	1.3	2.4	3.9	1.8	3.2	5.0	3.1	1.0	.42	.21	.11	.23
18	1.4	2.5	3.2	1.0	2.9	4.9	2.9	.95	1.1	.23	.10	.22
19	1.1	2.4	3.0	1.2	3.2	4.2	2.9	.90	1.7	.19	.07	.19
20	66	2.3	3.7	1.5	3.4	4.8	2.7	.80	.88	.26	.08	.18
21	36	2.2	7.0	1.8	3.0	4.6	2.6	.71	.67	.91	.08	.13
22	6.1	2.2	3.6	1.4	2.9	29	2.5	.66	.39	.86	.08	.13
23	3.4	2.1	3.6	1.2	3.3	15	2.4	.61	.35	.26	.08	.13
24	3.3	2.1	3.0	1.5	7.3	8.2	3.9	.59	.30	.17	.19	.13
25	21	2.2	2.8	1.9	9.4	6.1	7.5	1.7	.38	.17	.17	.16
26	168	2.3	6.0	2.2	5.5	5.2	4.4	1.6	.42	.22	.15	.20
27	12	2.2	4.5	2.2	4.8	4.7	3.3	1.0	.35	.16	.11	.21
28	6.1	2.4	3.9	2.3	4.3	5.2	2.8	.79	.30	.13	.11	.18
29	4.5	9.9	3.8	2.7	---	5.6	2.9	.64	.26	.11	.09	.10
30	4.0	6.1	3.1	2.3	---	4.7	2.5	.60	.19	.11	.08	.09
31	40	---	3.0	2.0	---	4.3	---	.70	---	.10	.08	---
TOTAL	525.75	100.6	184.2	58.0	108.8	221.0	170.6	55.25	15.01	9.22	4.26	4.56
MEAN	17.0	3.35	5.94	1.87	3.89	7.13	5.69	1.78	.53	.30	.14	.15
MAX	168	11	53	4.0	9.4	38	32	6.6	1.7	1.3	.30	.27
MIN	.95	2.1	2.3	1.0	1.4	2.8	2.4	.59	.19	.10	.07	.05
CFSM	2.23	.44	.78	.25	.51	.93	.75	.23	.07	.04	.02	.02
IN.	2.56	.49	.90	.28	.53	1.08	.83	.27	.08	.04	.02	.02

CAL YR 1976 TOTAL 2599.56 MEAN 7.10 MAX 178 MIN .03 CFSM .93 IN 12.46
WTR YR 1977 TOTAL 1458.05 MEAN 3.99 MAX 168 MIN .05 CFSM .52 IN 7.10

01660400 AQUIA CREEK NEAR GARRISONVILLE, VA

LOCATION.--Lat 38°29'25", long 77°26'02", Stafford County, Hydrologic Unit 02070011, on right bank at bridge on State Highway 641, 1.1 mi (1.8 km) northwest of Garrisonville, and 3.0 mi (4.8 km) upstream from Beaverdam Run.

DRAINAGE AREA.--34.9 mi² (90.4 km²).

PERIOD OF RECORD.--September 1971 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 120 ft (36.6 m), from topographic map.

REMARKS.--Records good except those for period of no gage-height record, Oct. 31 to Nov. 29, and those for January and February, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--6 years, 43.2 ft³/s (1.223 m³/s), 16.81 in/yr (427 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,600 ft³/s (329 m³/s) June 22, 1972, gage height, 16.32 ft (4.974 m), from rating curve extended above 1,600 ft³/s (45 m³/s) on basis of contracted-opening measurement of peak flow; minimum, 0.13 ft³/s (0.004 m³/s) Sept. 2, 1977, gage height, 0.98 ft (0.299 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 2	1700	970	27.5	4.60	1.402	Oct. 26	0930	*995	28.2	4.66	1.420
Oct. 20	1830	*995	28.2	4.66	1.420						

Minimum discharge, 0.13 ft³/s (0.004 m³/s) Sept. 2, gage height, 0.98 ft (0.299 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	56	23	24	15	24	21	15	5.0	1.6	.46	.17
2	303	35	20	22	16	23	20	22	4.5	1.5	.54	.15
3	227	27	19	20	17	21	23	56	3.9	1.2	.46	.54
4	38	22	17	19	19	21	27	31	3.4	1.0	.46	.39
5	20	19	16	18	21	23	67	52	3.1	.90	.32	.24
6	13	17	18	19	15	23	52	34	3.4	.83	.24	6.7
7	8.9	16	203	21	17	21	33	38	3.1	1.2	.24	4.5
8	7.5	15	102	19	16	19	28	30	3.1	1.0	.39	2.0
9	130	14	50	18	15	17	24	21	3.6	1.2	.75	1.6
10	64	15	40	17	20	17	23	16	3.9	1.5	.75	1.5
11	22	14	37	17	24	17	22	14	3.6	4.3	.75	.90
12	14	15	41	16	27	17	20	12	3.1	2.3	.61	.83
13	11	16	35	16	29	83	19	11	2.6	2.0	1.0	.83
14	8.9	15	29	17	27	74	18	10	2.3	1.9	2.0	.68
15	7.5	14	28	19	22	41	17	9.5	2.3	1.5	1.7	.75
16	6.7	13	28	18	19	31	16	8.5	2.6	1.3	1.0	.68
17	8.4	12	29	17	18	24	16	8.0	2.6	1.0	.83	.90
18	11	13	27	16	17	23	15	7.5	2.6	1.0	.75	.75
19	10	13	24	16	16	22	14	7.0	2.2	1.0	.54	.83
20	287	12	25	16	20	22	14	6.5	2.3	1.7	.39	.83
21	230	12	43	15	19	23	13	6.5	2.8	3.4	.32	.83
22	46	11	31	15	18	87	12	6.0	2.2	2.6	.24	.68
23	25	11	28	14	20	82	12	5.5	1.9	1.5	.24	.61
24	15	11	28	14	30	43	17	5.0	1.7	1.0	4.5	.54
25	[illegible]	11	26	15	50	33	36	9.0	2.3	1.0	2.3	.61
26	580	12	37	15	33	29	28	11	6.0	1.2	1.7	.61
27	82	12	33	16	30	25	19	9.0	3.6	.75	1.0	.61
28	46	13	29	17	26	25	16	7.0	2.8	.68	.68	.46
29	35	50	29	16	---	25	19	6.0	2.2	.61	.61	.46
30	31	42	27	15	---	24	17	5.0	1.9	.54	.39	.46
31	[illegible]	---	25	15	---	23	---	5.0	---	.39	.32	---
TOTAL	2544.9	561	1147	532	627	982	677	484.0	90.6	43.60	25.48	31.64
MEAN	82.1	18.7	37.0	17.2	22.4	31.7	22.6	15.6	3.02	1.41	.82	1.05
MAX	580	56	203	24	50	87	67	56	6.0	4.3	4.5	6.7
MIN	6.7	11	16	14	15	17	12	5.0	1.7	.39	.24	.15
CFSM	2.35	.54	1.06	.49	.64	.91	.65	.45	.09	.04	.02	.03
IN.	2.71	.60	1.22	.57	.67	1.05	.72	.52	.10	.05	.03	.03

CAL YR 1976 TOTAL 12962.55 MEAN 35.4 MAX 433 MIN .43 CFSM 1.01 IN 13.82
WTR YR 1977 TOTAL 7746.22 MEAN 21.2 MAX 580 MIN .15 CFSM .61 IN 8.26

01661800 BUSH MILL STREAM NEAR HEATHSVILLE, VA

LOCATION.--Lat 37°52'36", long 76°29'42", Northumberland County, Hydrologic Unit 02080102, on right bank 12 ft (4 m) upstream from bridge on State Highway 601, 2.2 mi (3.5 km) northwest of Howland, 3.0 mi (4.8 km) southwest of Heathsville, and 3.5 mi (5.6 km) upstream from mouth.

DRAINAGE AREA.--6.82 mi² (17.66 km²).

PERIOD OF RECORD.--October 1963 to March 1969, October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 23.78 ft (7.248 m) above mean sea level. Prior to Mar. 19, 1969, 52 ft (16 m) downstream at datum 0.74 ft (0.226 m) lower.

REMARKS.--Records good except those for January, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--13 years, (water years 1964-68, 1970-77), 7.12 ft³/s (0.202 m³/s), 14.18 in/yr (360 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 327 ft³/s (9.26 m³/s) Oct. 3, 1976, gage height, 6.56 ft (1.999 m), from rating curve extended above 110 ft³/s (3.1 m³/s); no flow many days in August and September 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 20, 1969, reached a stage of 6.13 ft (1.868 m), present datum, from floodmarks, discharge, about 450 ft³/s (13 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (2.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 3	0030	*327	9.26	6.56	1.999	Oct. 20	2230	114	3.23	5.29	1.612

Minimum discharge, 0.04 ft³/s (0.001 m³/s) Aug. 11, 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	10	6.4	5.0	9.0	7.5	4.4	3.6	2.7	.47	.18	.33
2	97	8.4	6.4	4.5	9.0	6.8	4.5	4.0	2.2	.41	.20	.31
3	103	8.6	5.5	5.0	11	6.4	4.5	26	2.2	.33	.31	.25
4	12	8.7	5.2	5.6	12	7.5	10	5.9	1.7	.33	.28	.41
5	7.5	8.6	5.3	5.4	11	8.2	28	5.8	1.6	.33	.18	.35
6	5.8	8.4	5.2	5.6	10	7.6	12	4.3	2.0	.31	.12	.31
7	4.9	8.7	15	6.0	9.0	7.8	8.1	13	2.0	.31	.08	1.1
8	4.7	8.7	18	7.0	8.2	6.7	7.3	6.1	1.5	.60	.08	.69
9	33	8.8	10	6.0	8.4	6.1	6.7	4.4	2.2	.89	.12	8.0
10	7.4	9.4	9.2	23	9.7	5.8	6.5	3.9	2.3	.69	.12	3.1
11	4.8	9.4	9.0	22	9.9	5.7	6.3	3.6	1.7	2.4	.06	1.9
12	4.3	13	10	10	9.5	5.6	5.8	3.4	1.4	1.5	.07	1.2
13	4.0	12	8.6	7.5	12	5.7	5.9	3.0	1.2	1.1	.29	.89
14	3.7	9.7	7.0	8.4	9.2	5.3	5.1	2.7	1.2	.65	.39	.77
15	3.5	9.4	7.6	20	8.6	5.0	4.9	2.4	1.7	.44	.65	.81
16	3.5	9.0	8.6	13	7.6	4.9	4.9	2.1	1.5	.33	.31	.77
17	17	7.6	8.1	12	7.4	4.7	4.6	2.0	1.2	.33	5.5	1.1
18	6.1	7.5	7.1	11	7.5	5.2	4.5	1.9	2.8	.20	4.3	.97
19	4.5	7.1	6.8	10	7.4	5.0	4.5	1.7	1.4	.20	1.3	.69
20	32	6.9	8.2	10	8.4	10	4.2	1.7	1.2	.20	.81	.69
21	32	6.5	12	9.4	6.9	6.5	4.0	1.6	1.9	.20	.69	.62
22	8.7	6.8	6.9	9.4	6.8	14	3.9	1.5	1.1	.14	.62	.85
23	7.0	6.4	7.0	9.4	6.9	8.2	3.7	1.5	.97	.08	.56	.85
24	6.9	6.4	6.4	9.6	11	5.9	5.5	1.6	.89	.08	1.1	.73
25	9.5	6.5	6.4	10	11	5.5	6.1	7.6	.97	.16	1.5	.65
26	45	6.7	13	12	7.8	5.3	4.7	8.5	1.2	.31	.77	.65
27	11	6.5	7.6	13	12	5.1	4.1	3.7	.77	.18	.59	.77
28	8.6	8.4	6.8	14	13	5.2	3.7	2.9	.69	.16	.50	.62
29	8.1	17	7.0	13	---	5.1	4.9	2.4	.69	.16	.47	.53
30	8.1	8.7	6.3	12	---	5.2	4.0	2.5	.53	.22	.41	.50
31	21	---	5.8	10	---	4.8	---	2.8	---	.18	.38	---
TOTAL	535.6	259.8	252.4	318.9	260.2	198.3	186.9	138.1	45.41	13.89	22.93	31.41
MEAN	17.3	8.66	8.14	10.3	9.29	6.40	6.23	4.45	1.51	.45	.74	1.05
MAX	103	17	18	23	13	14	28	26	2.8	2.4	5.5	8.0
MIN	3.5	6.4	5.2	4.5	6.8	4.7	3.7	1.5	.53	.08	.06	.25
CFSM	2.54	1.27	1.19	1.51	1.36	.94	.91	.65	.22	.07	.11	.15
IN.	2.92	1.42	1.38	1.74	1.42	1.08	1.02	.75	.25	.08	.13	.17

CAL YR 1976 TOTAL 2900.85 MEAN 7.93 MAX 103 MIN .31 CFSM 1.16 IN 15.82
WTR YR 1977 TOTAL 2263.74 MEAN 6.20 MAX 103 MIN .06 CFSM .91 IN 12.35

01661900 CARTER RUN NEAR MARSHALL, VA

LOCATION.--Lat 38°47'57", long 77°52'09", Fauquier County, Hydrologic Unit 02080103, on left bank 50 ft (15 m) upstream from farm road, 1.2 mi (1.9 km) downstream from Horner Run, 4.7 mi (7.6 km) south of Marshall, 6.7 mi (10.8 km) southwest of The Plains, and 9 mi (14 km) upstream from mouth.

DRAINAGE AREA.--19.5 mi² (50.5 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1976 to September 1977.

GAGE.--Water-stage recorder. Altitude of gage is 390 ft (119 m), from topographic map.

REMARKS.--Records fair.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.7 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 2	2245	366	10.4	4.95	1.509	Dec. 7	1145	320	9.06	4.80	1.463
Oct. 9	0930	*7100	201	a10.4	3.17	Mar. 13	1800	350	9.91	b4.9	1.49
Oct. 20	2145	323	9.15	4.81	1.466						

a From floodmarks, from rating curve extended above 130 ft³/s (3.7 m³/s) on basis of slope-area measurement of peak flow.
b From graph based on observer readings.

Minimum daily discharge, 0.48 ft³/s (0.014 m³/s) Aug. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	30	17	13	7.7	11	19	14	5.0	1.2	.85	1.0
2	83	32	18	13	7.3	10	22	14	3.8	1.2	.92	.90
3	115	30	14	13	8.5	9.6	22	14	2.8	1.1	.92	1.2
4	31	29	15	13	10	10	32	12	2.7	1.0	.85	1.2
5	14	26	15	14	9.5	10	115	19	3.3	.94	.79	1.1
6	14	23	15	14	6.7	15	73	18	4.1	.94	.72	1.2
7	11	23	161	15	5.8	14	46	15	3.1	.86	.69	13
8	91	22	60	14	5.2	14	39	16	2.6	.88	.72	3.3
9	1530	21	37	14	5.9	13	32	17	5.7	.79	.57	5.4
10	144	21	31	16	6.3	12	30	11	5.2	.80	.60	7.1
11	43	20	30	12	8.9	11	28	11	3.5	4.3	.48	2.0
12	36	20	32	11	6.6	12	25	11	3.0	7.8	.54	1.6
13	26	20	24	11	10	130	23	9.1	2.6	9.1	.60	1.3
14	26	19	23	12	8.8	90	21	9.1	2.3	2.0	.78	1.2
15	21	19	23	12	9.2	40	19	7.7	2.4	1.5	2.2	1.3
16	14	18	24	12	6.9	30	18	7.0	3.1	1.2	1.0	1.3
17	25	17	23	11	5.5	26	17	6.1	2.4	1.0	.80	1.7
18	24	18	21	11	5.6	23	16	5.5	2.3	.97	.80	1.5
19	17	17	20	12	6.8	29	13	5.5	2.4	.92	.80	1.4
20	96	17	21	11	6.7	19	12	6.3	2.6	.97	.70	1.8
21	113	17	21	9.5	6.1	18	11	5.4	2.6	1.0	.65	1.9
22	62	16	18	8.5	8.6	60	11	4.3	2.4	1.0	.60	2.0
23	31	15	16	7.5	7.3	56	11	4.1	2.2	.90	.60	2.2
24	33	15	16	7.5	8.5	37	14	4.1	2.2	1.4	21	1.9
25	49	16	16	8.0	22	29	16	5.6	2.3	2.0	6.2	1.5
26	103	16	19	8.0	13	26	17	4.4	2.2	3.4	4.3	1.4
27	41	17	17	8.5	12	23	13	5.0	2.0	1.5	1.1	1.5
28	34	18	16	9.0	12	27	11	4.7	1.7	1.0	.80	1.4
29	32	31	16	8.5	---	25	15	4.4	1.2	.91	.90	1.4
30	30	26	18	7.5	---	22	14	4.4	1.2	.88	2.7	1.4
31	61	---	16	7.5	---	21	---	4.7	---	.81	1.6	---
TOTAL	2963	636	799	344.0	238.1	876.6	753	275.8	85.1	54.25	55.67	67.10
MEAN	95.6	21.1	25.8	11.1	8.50	28.3	25.1	8.90	2.84	1.75	1.80	2.24
MAX	1530	30	161	16	22	130	115	19	5.7	9.1	21	13
MIN	11	15	14	7.5	5.2	9.6	11	4.1	1.2	.79	.48	.90
CFSM	4.90	1.08	1.32	.57	.44	1.45	1.29	.46	.15	.09	.09	.12
IN.	5.65	1.21	1.52	.66	.45	1.67	1.44	.53	.16	.10	.11	.13

WTR YR 1977 TOTAL 7145.62 MEAN 19.6 MAX 1530 MIN .48 CFSM 1.01 IN 13.63

01661900 CARTER RUN NEAR MARSHALL, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: January to September 1977.

REMARKS.--Other water-quality data for stations in the Soil Conservation Service study are published in this report as miscellaneous analyses.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 845 mg/L Mar. 13; minimum daily mean, 2 mg/L Apr. 1, 15.
SEDIMENT LOADS: Maximum daily, 560 tons (508 tonnes) Mar. 13; minimum daily, 0.02 ton (0.02 tonnes) on several days during July and August.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
JUL												
21...	1400	90	25.0	6	32	0	8.6	2.6	3.9	2.3	39	4.6

DATE	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO, PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL PHYTO-PLANK-TON (CELLS PER ML)
JUL												
21...	.1	12	63	59	.37	1.6	.01	.38	.00	.00	250	850

01661900 CARTER RUN NEAR MARSHALL, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)
MAR								
24...	1457	35	70	9.0	5	25	9	6.5
APR								
05...	1410	127	--	--	--	--	--	--
28...	1245	11	75	13.0	--	--	--	--
MAY								
17...	1430	6.4	80	23.0	--	--	--	--
JUN								
08...	1353	2.6	85	24.0	--	--	--	--
29...	1150	1.2	80	27.0	20	37	0	10
JUL								
13...	1030	6.4	78	25.0	--	--	--	--

DATE	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SIO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)
MAR									
24...	2.2	3.6	1.3	20	6.3	.0	12	63	50
APR									
05...	--	--	--	--	--	--	--	60	--
28...	--	--	--	--	--	--	--	56	--
MAY									
17...	--	--	--	--	--	--	--	56	--
JUN									
08...	--	--	--	--	--	--	--	58	--
29...	3.0	4.3	2.1	44	2.5	.1	9.4	83	60
JUL									
13...	--	--	--	--	--	--	--	82	--

DATE	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED NITRATE (NO3) (MG/L)	DIS- SOLVED NITRITE (N) (MG/L)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS- SOLVED ORTHO. PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHO PHOS- PHATE (PO4) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL PHYTO- PLANK- TON (CELLS PER ML)
MAR								
24...	.55	2.4	.01	.56	.01	.03	100	2900
APR								
05...	--	--	--	--	--	--	--	1400
28...	--	--	--	--	--	--	--	1000
MAY								
17...	--	--	--	--	--	--	--	400
JUN								
08...	--	--	--	--	--	--	--	340
29...	.12	.50	.01	.13	.00	.00	0	1200
JUL								
13...	--	--	--	--	--	--	--	1900

RAPPAHANNOCK RIVER BASIN

01661900 CARTER RUN NEAR MARSHALL, VA

SUSPENDED SEDIMENT, JANUARY TO SEPTEMBER 1977

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1							10	0.35	5	0.10	14	0.42
2							7	0.25	5	0.10	13	0.35
3							5	0.10	6	0.14	11	0.29
4							3	0.11	7	0.19	12	0.32
5							15	0.57	7	0.18	21	0.91
6							12	0.45	8	0.16	24	0.97
7							10	0.41	13	0.20	22	0.83
8							5	0.19	15	0.21	18	0.68
9							10	0.38	14	0.22	13	0.46
10							19	0.65	14	0.24	9	0.29
11							5	0.16	15	0.36	8	0.24
12							5	0.15	16	0.41	7	0.23
13							5	0.15	16	0.43	445	560
14							15	0.49	16	0.30	410	150
15							10	0.32	15	0.37	45	4.9
16							5	0.16	14	0.26	25	2.0
17							5	0.15	14	0.21	19	1.2
18							3	0.09	14	0.20	16	0.99
19							3	0.10	11	0.20	14	0.76
20							4	0.12	10	0.10	14	0.72
21							5	0.13	10	0.17	14	0.68
22							5	0.11	11	0.19	480	114
23							7	0.14	12	0.24	48	7.3
24							10	0.20	17	0.25	24	2.4
25							3	0.06	30	1.8	23	1.8
26							5	0.11	15	0.53	21	1.5
27							5	0.11	15	0.49	17	1.1
28							15	0.36	15	0.49	15	1.1
29							10	0.23	---	---	18	1.2
30							5	0.10	---	---	10	0.59
31							5	0.10	---	---	4	0.23
TOTAL							---	7.00	---	8.88	---	858.46
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	2	0.10	11	0.42	20	0.27	13	0.04	28	0.06	15	0.04
2	10	0.59	14	0.53	16	0.16	12	0.04	27	0.07	14	0.03
3	9	0.53	15	0.57	18	0.14	12	0.04	28	0.07	20	0.06
4	23	2.0	16	0.52	14	0.10	11	0.03	35	0.08	15	0.05
5	620	205	48	2.9	15	0.13	9	0.02	36	0.08	12	0.04
6	74	15	42	2.0	15	0.17	9	0.02	26	0.05	25	0.08
7	21	2.6	14	0.57	19	0.16	10	0.02	26	0.05	115	5.6
8	12	1.3	15	0.65	19	0.13	12	0.03	37	0.07	39	0.35
9	10	0.86	11	0.36	24	0.37	13	0.03	37	0.06	49	1.0
10	10	0.81	12	0.36	20	0.28	13	0.03	32	0.05	35	0.67
11	9	0.66	12	0.36	18	0.17	45	0.75	37	0.05	13	0.07
12	7	0.47	13	0.39	17	0.14	113	3.8	33	0.05	12	0.05
13	6	0.37	16	0.39	20	0.14	70	1.7	32	0.05	10	0.04
14	4	0.23	16	0.39	26	0.16	31	0.17	24	0.05	9	0.03
15	2	0.16	13	0.27	27	0.19	30	0.12	58	0.30	11	0.04
16	6	0.29	11	0.21	25	0.21	33	0.11	25	0.07	11	0.04
17	10	0.46	11	0.18	22	0.14	36	0.10	25	0.05	10	0.05
18	9	0.36	11	0.16	30	0.19	27	0.07	20	0.04	12	0.05
19	8	0.32	16	0.24	34	0.22	21	0.05	20	0.04	14	0.05
20	9	0.29	15	0.21	25	0.18	19	0.05	15	0.03	14	0.07
21	9	0.27	15	0.23	38	0.27	20	0.05	12	0.02	10	0.05
22	9	0.27	17	0.20	22	0.14	28	0.08	10	0.02	14	0.08
23	9	0.27	16	0.18	14	0.10	23	0.06	10	0.02	23	0.14
24	24	1.2	15	0.17	15	0.09	30	0.11	110	6.2	29	0.15
25	34	1.5	16	0.24	19	0.12	32	0.17	70	1.2	22	0.09
26	29	1.3	19	0.33	25	0.15	43	0.39	30	0.27	16	0.06
27	17	0.42	14	0.19	18	0.10	26	0.10	20	0.06	17	0.07
28	17	0.50	14	0.18	16	0.07	17	0.05	10	0.02	20	0.08
29	17	0.69	11	0.13	14	0.05	18	0.02	15	0.03	26	0.10
30	9	0.34	14	0.17	14	0.05	18	0.04	58	0.36	32	0.12
31	---	---	25	0.32	---	---	24	0.05	30	0.13	---	---
TOTAL	---	239.10	---	14.02	---	4.79	---	8.34	---	9.70	---	9.35

TOTAL LOAD FOR PERIOD: 1159.72 TONS.

01662000 RAPPAHANNOCK RIVER NEAR WARRENTON, VA

LOCATION.--Lat 38°41'05", long 77°54'15", Fauquier County, Hydrologic Unit 02080103, on left bank 50 ft (20 m) downstream from bridge on U.S. Highway 211, 0.9 mi (1.4 km) downstream from Carter Run, 6.2 mi (10.0 km) southwest of Warrenton, 15 mi (24 km) upstream from Hazel River, and at mile 53.0 (85.3 km).

DRAINAGE AREA.--195 mi² (505 km²).

PERIOD OF RECORD.--August 1942 to current year.

REVISED RECORDS.--WSP 1302: 1944(M). WDR 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 312.57 ft (95.271 m) above mean sea level. Oct. 8, 1942, to Dec. 17, 1944, nonrecording gage 50 ft (20 m) upstream at present datum.

REMARKS.--Records fair. Doubtful gage-height record June 25 to Sept. 30. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--35 years, 191 ft³/s (5.409 m³/s), 13.30 in/yr (338 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,000 ft³/s (906 m³/s) Oct. 15, 1942, gage height, 23.5 ft (7.16 m), from floodmark, from rating curve extended above 24,000 ft³/s (680 m³/s); minimum daily, 0.70 ft³/s (0.020 m³/s) Oct. 4, 5, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,800 ft³/s (51 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1630	*18000	510	22.00	6.706	July 11	1400	6230	176	15.43	4.703

Minimum daily, 3.6 ft³/s (0.10 m³/s) July 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	244	613	130	90	73	102	163	100	37	5.2	16	31
2	344	336	130	119	73	96	167	106	36	4.6	15	21
3	444	307	116	115	[illegible]	87	194	116	26	4.6	16	80
4	330	246	120	104	96	103	210	105	22	4.5	41	61
5	215	261	122	100	106	220	709	122	19	4.1	26	27
6	157	230	136	110	90	190	672	120	22	3.6	40	19
7	136	226	424	95	86	138	670	120	24	5.0	27	45
8	116	211	420	97	78	122	600	140	21	4.4	15	27
9	4580	108	372	95	88	112	332	104	25	4.0	64	22
10	7460	105	305	100	104	104	290	91	36	4.0	40	31
11	756	103	262	90	135	102	273	80	20	2247	66	23
12	506	100	300	85	155	90	250	83	22	251	46	15
13	347	107	266	83	145	525	220	70	20	182	15	11
14	306	170	217	86	140	653	211	72	17	41	10	9.6
15	271	167	213	100	120	507	190	69	22	58	26	8.6
16	235	160	213	90	100	310	185	66	24	61	17	9.0
17	226	153	200	90	90	268	171	61	13	37	4.0	10
18	226	156	186	86	85	222	160	60	16	33	4.6	9.6
19	195	167	171	82	90	216	153	56	16	30	10	9.0
20	604	166	176	80	93	186	165	57	16	27	4.2	20
21	956	130	142	80	90	142	130	52	13	66	4.5	31
22	696	138	160	78	90	613	133	60	11	56	4.0	16
23	366	131	162	80	92	516	129	63	9.7	29	7.0	12
24	366	126	130	86	107	356	131	62	8.2	27	21	10
25	427	126	125	95	107	290	163	67	9.0	29	11	11
26	425	120	160	92	123	295	168	66	11	66	26	16
27	532	132	162	86	119	226	129	65	10	61	13	33
28	611	131	126	80	110	230	119	37	8.5	26	4.0	26
29	362	236	120	80	---	260	122	36	7.0	20	11	19
30	310	216	115	76	---	266	115	30	6.0	16	11	[illegible]
31	956	---	125	75	---	165	---	91	---	[illegible]	64	---
TOTAL	23062	5063	6616	2745	3030	7306	7012	2207	569.6	[illegible]	[illegible]	666.[illegible]
MEAN	744	169	213	88.[illegible]	106	236	234	76.1	18.7	[illegible]	[illegible]	22.1
MAX	4580	613	424	119	167	653	709	160	38	[illegible]	113	80
MIN	136	100	115	75	73	87	115	30	6.0	[illegible]	7.0	8.6
CFSM	3.82	1.08	1.09	.46	.54	1.21	1.20	.38	.10	[illegible]	.13	.11
IN.	4.40	1.11	1.26	.53	.56	1.90	1.36	.44	.11	[illegible]	.15	.13

CAL YR 1976 TOTAL 85297.1 MEAN 233 MAX 4580 MIN 11 CFSM 1.20 IN 16.27
WTR YR 1977 TOTAL 63227.0 MEAN 173 MAX 4580 MIN 3.6 CFSM .89 IN 12.06

01662500 RUSH RIVER AT WASHINGTON, VA

LOCATION.--Lat 38°42'50", long 78°09'05", Rappahannock County, Hydrologic Unit 02080103, on left bank 20 ft (6 m) upstream from bridge on old U.S. Highways 211 and 522, 0.5 mi (0.8 km) east of Washington, and 1.6 mi (2.6 km) upstream from Big Branch.

DRAINAGE AREA.--14.7 mi² (38.1 km²).

PERIOD OF RECORD.--August 1953 to September 1977 (discontinued).

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 597.97 ft (182.261 m) above mean sea level.

REMARKS.--Records good except those for period of no gage-height record, July 13 to Aug. 25, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--24 years, 16.4 ft³/s (0.464 m³/s), 15.15 in/yr (385 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,880 ft³/s (81.6 m³/s) Oct. 9, 1976; maximum gage height, 8.14 ft (2.481 m) Aug. 18, 1955; no flow Sept. 4, 1953, and many days in 1954, 1963-66.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,880 ft³/s (81.6 m³/s) at 1000 hours Oct. 9, gage height, 6.42 ft (1.957 m), no other peak above base of 350 ft³/s (9.9 m³/s); minimum daily, 0.01 ft³/s (<0.001 m³/s) Aug. 19-22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	26	12	10	9.0	10	15	7.4	2.1	.19	.08	2.2
2	30	23	10	10	9.2	9.9	15	7.4	1.2	.18	.07	1.4
3	50	21	9.5	9.2	9.0	9.9	14	7.0	.75	.17	.10	1.2
4	33	20	11	9.2	7.4	16	30	7.8	.57	.16	.06	.86
5	38	18	10	8.4	8.6	16	91	8.8	.52	.15	.04	.96
6	22	17	9.5	9.2	11	14	63	7.4	.75	.14	.02	1.2
7	19	16	65	9.9	8.8	11	48	8.8	.75	.13	.03	1.2
8	34	16	37	9.5	9.2	11	39	8.1	.57	.12	.02	.96
9	517	16	27	9.5	9.5	11	31	7.8	2.0	.11	.02	.80
10	49	16	23	9.5	9.5	12	26	6.4	1.4	.10	.07	.78
11	46	14	22	9.2	9.5	13	22	6.4	.75	11	.02	.54
12	31	13	22	8.4	9.2	14	19	6.0	.57	.06	.02	.41
13	23	12	19	8.1	8.8	90	14	5.2	.40	.25	.02	.34
14	19	12	17	8.1	8.5	66	17	5.0	.83	.11	.03	.31
15	18	12	16	8.0	8.1	46	16	4.5	1.4	.08	.02	.31
16	14	11	16	8.6	7.8	33	15	3.8	1.0	.06	.02	.32
17	15	11	18	8.0	7.8	26	16	3.8	.68	.06	.02	.41
18	14	11	16	7.8	7.6	23	13	3.3	.64	.06	.02	.35
19	12	11	14	6.7	7.4	20	13	3.1	.52	.06	.01	.36
20	46	9.9	14	7.0	7.8	19	12	3.1	.45	.20	.01	1.1
21	38	9.5	13	6.7	7.0	18	11	2.5	.60	.05	.01	.72
22	26	9.9	14	6.4	6.1	50	10	2.3	.35	.10	.01	.56
23	22	9.2	12	6.0	7.0	38	10	2.1	.30	.05	.05	.48
24	23	9.2	12	6.7	11	31	10	2.1	.25	.04	1.1	.43
25	33	9.0	13	7.0	14	25	9.9	2.7	.25	.20	.90	.45
26	59	8.6	12	7.0	14	23	9.5	2.5	.44	.06	.43	1.0
27	36	8.4	12	6.7	15	21	8.8	1.4	.35	.04	.27	1.0
28	29	8.8	12	6.4	13	21	8.6	1.1	.25	.02	.19	.88
29	25	16	11	6.2	---	20	8.1	1.0	.22	.02	.14	.64
30	23	13	11	5.0	---	18	7.8	1.0	.20	.02	1.0	.54
31	38	---	10	5.0	---	16	---	1.9	---	.02	2.1	---
TOTAL	1425	404.2	514.0	244.9	244.6	760.8	623.5	140.9	21.16	14.50	6.70	22.61
MEAN	46.0	13.5	16.6	7.90	8.74	24.5	20.8	4.55	.70	.47	.22	.75
MAX	517	26	65	10	15	90	91	8.8	2.1	11	2.1	2.2
MIN	12	8.4	9.5	5.0	5.0	9.9	7.8	1.0	.20	.02	.01	.31
CFSM	3.13	.92	1.13	.54	.59	1.66	1.42	.31	.05	.03	.02	.05
IN.	3.61	1.02	1.30	.62	.62	1.92	1.58	.36	.05	.04	.02	.06

CAL YR 1976 TOTAL 6129.16 MEAN 16.7 MAX 517 MIN .16 CFSM 1.14 IN 15.51
WTR YR 1977 TOTAL 4410.03 MEAN 12.1 MAX 517 MIN .01 CFSM .82 IN 11.16

01662800 BATTLE RUN NEAR LAUREL MILLS, VA

LOCATION.--Lat 38°39'20", long 78°04'27", Rappahannock County, Hydrologic Unit 02080103, on left bank just upstream from bridge on State Highway 729, 0.8 mi (1.3 km) upstream from mouth, and 1.0 mi (1.6 km) northeast of Laurel Mills.

DRAINAGE AREA.--27.6 mi^2 (71.5 km^2).

PERIOD OF RECORD.--April 1958 to current year.

REVISED RECORDS.--WSP 2103: Drainage area. WDR VA-72: 1971. WDR VA-74: 1972.

GAGE.--Water-stage recorder. Datum of gage is 374.62 ft (114.184 m) above mean sea level.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--19 years, 24.8 ft^3/s (0.702 m^3/s), 12.20 in/yr (310 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,120 ft^3/s (258 m^3/s) Oct. 9, 1976, gage height, 13.90 ft (4.237 m), from floodmark, from rating curve extended above 2,500 ft^3/s (71 m^3/s) on basis of velocity-area study; no flow many days in September 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 310 ft^3/s (8.8 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 2	1830	472	13.4	5.50	1.676	July 11	0500	4790	136	a12.31	3.752
Oct. 9	1000	*9120	258	a13.90	4.237	Sept. 5	1830	388	11.0	5.14	1.567
Dec. 7	0800	400	11.3	5.21	1.588						

a From floodmark, from rating curve extended above 2,500 ft^3/s (71 m^3/s) on basis of velocity-area study.

Minimum discharge, 0.60 ft^3/s (0.017 m^3/s) July 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	50	23	17	13	14	22	14	6.4	1.8	2.8	3.9
2	111	45	21	17	13	14	24	14	5.4	1.6	2.7	2.7
3	64	42	20	17	14	13	24	14	4.4	1.6	4.0	3.9
4	33	38	20	18	17	23	34	14	3.9	1.2	3.7	2.5
5	22	35	20	18	16	29	96	16	4.1	1.2	2.7	37
6	18	32	19	18	17	22	73	14	5.4	1.1	2.7	13
7	14	31	130	18	13	19	58	14	4.6	.79	4.2	9.8
8	39	29	64	19	12	18	50	14	3.9	.66	2.5	5.6
9	2000	28	46	17	13	17	43	12	5.9	.60	2.4	4.8
10	163	28	39	17	19	16	39	12	5.1	.66	4.2	4.8
11	82	26	37	18	19	16	36	11	3.9	440	2.4	3.7
12	57	28	40	16	17	16	32	11	3.5	24	2.0	3.0
13	44	26	33	14	17	82	29	10	3.3	14	4.0	2.8
14	35	24	29	14	15	66	28	9.7	4.2	9.5	6.6	2.7
15	27	24	29	15	15	48	26	9.1	5.6	6.8	3.9	2.7
16	25	22	29	15	14	40	25	8.8	4.2	5.9	2.7	2.7
17	29	21	28	14	14	33	23	8.4	3.7	5.3	2.7	3.0
18	25	21	25	14	15	31	23	8.1	4.1	4.8	2.5	2.7
19	23	21	24	13	13	27	21	7.8	3.0	4.6	2.0	2.5
20	124	20	25	13	13	26	20	7.5	2.7	5.3	1.7	10
21	93	20	24	13	13	25	20	7.2	2.7	34	1.6	3.9
22	59	19	23	13	13	62	19	6.7	2.4	15	1.9	3.0
23	46	18	23	13	13	52	18	6.7	2.3	6.2	1.9	2.7
24	45	18	22	13	16	43	19	6.4	2.2	4.8	10	2.7
25	62	18	22	14	17	36	20	7.5	2.8	6.9	5.1	2.8
26	109	18	22	14	15	33	18	7.2	3.7	7.8	2.7	4.2
27	69	18	21	15	16	30	17	6.2	2.4	4.6	2.4	3.9
28	55	19	21	14	15	31	16	5.9	2.1	3.9	2.0	3.2
29	47	36	21	14	---	30	16	5.4	1.9	3.7	1.7	2.5
30	44	24	21	13	---	26	15	5.4	1.6	3.9	2.8	2.2
31	71	---	18	13	---	24	---	6.2	---	3.2	4.5	---
TOTAL	3663	799	939	471	417	962	904	300.2	111.4	625.41	99.0	154.9
MEAN	118	26.6	30.3	15.2	14.9	31.0	30.1	9.68	3.71	20.2	3.19	5.16
MAX	2000	50	130	19	19	82	96	16	6.4	440	10	37
MIN	14	18	18	13	12	13	15	5.4	1.6	.60	1.6	2.2
CFSM	4.28	.96	1.10	.55	.54	1.12	1.09	.35	.13	.73	.12	.19
IN.	4.94	1.08	1.27	.63	.56	1.30	1.22	.40	.15	.84	.13	.21

CAL YR 1976 TOTAL 11455.50 MEAN 31.3 MAX 2000 MIN 2.5 CFSM 1.13 IN 15.44
WTR YR 1977 TOTAL 9445.91 MEAN 25.9 MAX 2000 MIN .60 CFSM .94 IN 12.73

01663500 HAZEL RIVER AT RIXEYVILLE, VA

LOCATION.--Lat 38°35'30", long 77°57'55", Culpeper County, Hydrologic Unit 02080103, on right bank at downstream side of bridge on State Highway 229, 0.4 mi (0.6 km) upstream from Waterford Run, 1.1 mi (1.8 km) northeast of Rixeyville, 2.8 mi (4.5 km) downstream from Thornton River, and 9.1 mi (14.6 km) upstream from mouth.

DRAINAGE AREA.--287 mi² (743 km²).

PERIOD OF RECORD.--August 1942 to current year.

REVISED RECORDS.- WSP 971: 1942. WSP 1622: 1957-58. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 288.30 ft (87.874 m) above mean sea level.

REMARKS.--Records good except those for winter periods, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--35 years, 328 ft³/s (9.289 m³/s), 15.52 in/yr (394 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 60,000 ft³/s (1,700 m³/s) Oct. 15, 1942, gage height, 31.8 ft (9.69 m), from rating curve extended above 27,000 ft³/s (760 m³/s); minimum, 1.1 ft³/s (0.031 m³/s) Sept. 10-13, 1966, gage height, 1.69 ft (0.515 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 26, 1937, reached a stage of 28.4 ft (8.66 m), from floodmarks, discharge, 43,500 ft³/s (1,230 m³/s), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s (71 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 3	0100	2720	77.0	9.18	2.798	Oct. 20	2330	2830	80.1	9.54	2.908
Oct. 9	1730	*26900	762	24.00	7.315	July 11	1100	4000	113	11.34	3.456

Minimum discharge, 6.7 ft³/s (0.19 m³/s) July 10-11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	403	523	218	135	97	158	245	151	65	19	23	76
2	655	429	221	150	98	144	242	144	67	17	22	55
3	1440	394	196	170	110	134	256	184	52	14	21	97
4	532	366	190	155	125	147	280	152	44	12	82	68
5	349	335	185	142	140	339	939	164	41	12	49	46
6	264	306	190	150	128	251	872	150	42	12	39	118
7	219	290	1160	137	114	218	655	140	44	9.8	38	103
8	346	275	897	130	104	194	552	151	39	8.7	43	83
9	13100	257	579	132	100	178	463	130	40	8.3	57	64
10	4240	254	462	140	130	170	414	116	50	9.6	141	61
11	1050	241	417	125	175	162	384	114	48	1110	97	52
12	692	246	427	120	190	158	352	111	38	344	54	40
13	508	251	383	118	205	830	324	105	34	181	43	32
14	400	229	329	141	190	991	304	98	31	109	59	27
15	331	225	312	138	170	667	286	98	44	78	79	25
16	284	216	312	125	150	516	261	89	51	62	53	26
17	269	206	314	112	133	412	245	85	42	51	46	29
18	284	203	276	118	120	368	231	81	46	48	54	30
19	230	197	254	123	138	332	221	79	54	46	40	26
20	880	191	255	120	130	306	209	76	40	87	30	58
21	1410	185	258	115	128	289	198	73	33	86	25	71
22	679	182	192	112	122	489	191	68	28	147	23	43
23	489	173	220	114	126	689	182	64	23	70	22	30
24	427	167	205	120	135	498	186	64	22	45	36	25
25	539	169	190	135	243	422	193	71	23	39	113	24
26	1510	168	205	130	194	381	190	82	74	61	78	29
27	799	171	210	125	183	342	172	71	55	50	42	30
28	594	172	190	120	179	335	163	60	34	36	31	38
29	488	305	175	115	---	340	171	54	28	28	25	29
30	426	315	175	105	---	304	156	50	23	26	22	23
31	671	---	180	100	---	277	---	54	---	25	43	---
TOTAL	34508	7641	9777	3972	4057	11041	9537	3129	1255	2851.4	1521	1448
MEAN	1113	255	315	128	145	356	318	101	41.8	92.0	49.1	48.3
MAX	13100	523	1160	170	243	991	939	184	74	1110	141	118
MIN	219	167	175	100	97	134	156	50	22	8.3	21	23
CFSM	3.88	.89	1.10	.45	.51	1.24	1.11	.35	.15	.32	.17	.17
IN.	4.47	.99	1.27	.51	.53	1.43	1.24	.41	.16	.37	.20	.19

CAL YR 1976 TOTAL 136245.0 MEAN 372 MAX 13100 MIN 21 CFSM 1.30 IN 17.66
WTR YR 1977 TOTAL 90737.4 MEAN 249 MAX 13100 MIN 8.3 CFSM .87 IN 11.76

01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA

LOCATION.--Lat 38°31'50", long 77°48'50", Fauquier County, Hydrologic Unit 02080103, on left bank 80 ft (20 m) upstream from bridge on U.S. Highway 29 at Remington, 0.3 mi (0.5 km) upstream from Tinpot Run, 0.4 mi (0.6 km) downstream from Ruffans Run, 2.5 mi (4.0 km) downstream from Hazel River, and at mile 35.2 (56.6 km).

DRAINAGE AREA.--620 mi² (1,606 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1942 to current year.

REVISED RECORDS.--WSP 1171: 1944. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 252.53 ft (76.971 m) above mean sea level. Prior to Nov. 21, 1951, nonrecording gage at bridge 80 ft (20 m) downstream at same datum.

REMARKS.--Records good except those for winter periods, which are fair. National Weather Service rain gage and gage-height telemeters at station.

AVERAGE DISCHARGE.--35 years, 657 ft³/s (18.61 m³/s), 14.39 in/yr (366 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 90,000 ft³/s (2,550 m³/s) Oct. 16, 1942, gage height, 30.0 ft (9.14 m), from floodmarks, from rating curve extended above 43,000 ft³/s (1,200 m³/s) on basis of slope-area determination of peak flow; minimum, 2.8 ft³/s (0.079 m³/s) Sept. 13, 1966, gage height, 2.31 ft (0.704 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum flood since at least 1828, that of Oct. 16, 1942.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,000 ft³/s (170 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 10	0230	*36800	1040	21.97	6.696	Oct. 21	0330	6240	177	11.34	3.456

Minimum discharge, 15 ft³/s (0.42 m³/s) July 8, gage height, 2.64 ft (0.805 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	647	1350	479	260	210	335	476	281	112	32	50	292
2	1140	1030	456	320	215	299	458	277	119	26	48	112
3	3350	924	410	340	230	275	526	344	99	23	46	334
4	1150	860	400	320	270	285	522	293	84	21	69	308
5	722	775	390	300	300	568	1830	303	76	19	96	132
6	510	647	400	310	250	516	2000	316	74	18	88	275
7	408	652	2530	290	225	426	1340	302	80	18	65	531
8	644	614	2450	270	215	378	1110	311	75	16	80	192
9	11900	570	1260	290	210	342	937	273	75	20	91	237
10	22800	552	992	300	250	323	821	227	86	25	318	235
11	2950	531	896	260	363	310	746	217	99	2130	151	137
12	1700	535	925	240	432	299	678	213	78	1530	91	99
13	1210	552	845	250	433	1020	617	204	70	410	70	80
14	940	498	690	290	424	2240	574	191	63	234	71	69
15	744	478	642	320	376	1290	540	185	65	145	116	64
16	648	461	639	270	324	997	497	173	85	106	85	61
17	596	436	643	260	270	801	465	164	79	87	70	70
18	651	427	582	245	267	688	437	160	70	76	74	68
19	527	415	528	250	285	633	415	156	79	73	67	64
20	1390	401	526	240	282	561	396	156	66	88	57	102
21	4180	387	551	230	274	554	373	144	60	90	51	116
22	1640	380	432	230	267	771	358	137	53	465	48	100
23	1130	363	520	235	285	1620	344	128	46	120	45	74
24	981	347	450	250	294	1050	337	124	43	79	51	61
25	1290	347	395	280	504	865	393	134	44	65	203	58
26	4650	345	430	270	418	750	368	158	63	84	160	61
27	2010	349	450	260	378	666	338	142	75	89	83	70
28	1360	353	400	250	377	636	308	119	55	71	63	86
29	1120	592	380	240	---	690	313	107	43	58	54	74
30	983	771	370	230	---	603	301	99	37	52	52	63
31	1660	---	390	225	---	543	---	98	---	50	96	---
TOTAL	75631	16990	21451	8305	8608	21334	18818	6136	2153	6320	2707	4225
MEAN	2440	566	692	268	307	688	627	198	71.8	204	87.3	141
MAX	22800	1350	2530	340	504	2240	2000	344	119	2130	318	531
MIN	408	345	370	225	210	275	301	98	37	16	45	58
CFSM	3.94	.91	1.12	.43	.50	1.11	1.01	.32	.12	.33	.14	.23
IN.	4.54	1.02	1.29	.50	.52	1.28	1.13	.37	.13	.38	.16	.25

CAL YR 1976 TOTAL 281798 MEAN 770 MAX 22800 MIN 38 CFSM 1.24 IN 16.91
WTR YR 1977 TOTAL 192678 MEAN 528 MAX 22800 MIN 16 CFSM .85 IN 11.56

01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1951 to September 1956, October 1965 to current year.
WATER TEMPERATURES: May 1951 to September 1956, October 1965 to September 1976.
SUSPENDED-SEDIMENT DISCHARGE: April 1951 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 150 micromhos Sept. 3, 1974; minimum, 24 micromhos July 6, 1975.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,730 mg/L Mar. 12, 1963; minimum daily mean, 1 mg/L on many days during each year.
SEDIMENT LOADS: Maximum daily, 55,600 tons (50,400 tonnes) Sept. 26, 1975; minimum daily, 0.29 ton (0.26 tonne) Oct. 3, 4, 1974.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 105 micromhos Sept. 13; minimum, 38 micromhos Oct. 10.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,000 mg/L Oct. 9; minimum daily mean, 1 mg/L Jan. 16, 25, May 29, 30.
SEDIMENT LOADS: Maximum daily, 32,100 tons (29,100 tonnes) Oct. 9; minimum daily, 0.27 ton (0.24 tonne) May 30.

WATER QUALITY DATA. WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
OCT												
15...	1900	709	65	5	21	5	5.3	2.0	3.4	1.2	20	5.9
NOV												
15...	1900	480	68	0	22	4	5.2	2.1	3.8	1.5	22	5.7
DEC												
15...	1930	644	66	0	26	8	6.4	2.5	3.6	1.4	22	6.7
JAN												
15...	1800	320	65	0	25	6	6.4	2.2	4.1	1.4	23	5.0
FEB												
15...	1730	374	59	5	21	6	5.6	1.7	3.3	1.3	18	5.0
MAR												
15...	1800	1190	61	30	20	4	5.2	1.7	3.2	1.5	20	7.1
APR												
15...	1830	520	64	10	21	2	5.4	1.8	3.4	1.3	23	5.5
MAY												
15...	1600	186	67	10	24	0	6.3	2.0	3.9	1.9	30	3.8
JUL												
15...	1900	130	68	8	24	5	6.3	1.9	3.6	3.1	23	6.9
AUG												
15...	1700	117	73	4	27	1	7.3	2.2	4.2	3.1	32	4.2
SEP												
15...	1930	62	100	2	38	8	10	3.2	5.0	3.0	37	10

01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)
OCT												
15...	3.4	.2	14	46	48	.64	2.8	.00	.64	.01	.03	10
NOV												
15...	3.3	.1	15	53	50	.56	2.5	.00	.56	.01	.03	20
DEC												
15...	4.2	.0	14	49	53	.68	3.0	.00	.68	.00	.00	40
JAN												
15...	4.7	.0	14	68	54	1.0	4.4	.00	1.0	.02	.06	10
FEB												
15...	3.6	.0	12	50	45	.78	3.5	.00	.78	.01	.03	10
MAR												
15...	3.5	.0	12	51	47	.68	3.0	.00	.68	.00	.00	30
APR												
15...	3.5	.0	10	58	43	.27	1.2	.00	.27	.00	.00	10
MAY												
15...	3.8	.1	9.8	54	49	.47	2.1	.02	.49	.00	.00	50
JUL												
15...	3.9	.1	12	68	51	.39	1.7	.00	.39	.01	.03	30
AUG												
15...	4.4	.1	9.1	54	52	--	--	.00	.54	.00	.00	20
SEP												
15...	5.3	.1	11	71	68	.42	1.9	.02	.44	.00	.00	50

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	68	65	68	66	65	63	57	72	75	70	73
2	60	69	65	68	65	66	65	58	77	70	75	68
3	58	70	65	64	65	68	62	57	77	80	72	63
4	63	70	65	65	60	71	63	62	70	72	70	70
5	65	67	67	54	60	65	68	60	69	80	70	80
6	60	77	67	61	60	67	63	65	71	72	65	70
7	60	78	69	62	59	64	60	63	73	78	62	70
8	63	66	66	65	58	65	62	63	74	80	60	78
9	45	64	63	64	59	62	63	62	75	65	70	90
10	38	64	65	65	58	65	63	62	75	60	62	61
11	65	65	68	63	60	68	62	65	69	55	70	80
12	48	65	65	58	60	61	62	66	70	60	65	79
13	65	63	64	70	58	63	65	66	71	58	73	105
14	67	63	65	71	57	64	64	67	71	65	75	---
15	60	68	66	65	59	61	64	67	72	68	73	100
16	48	79	64	67	59	61	67	73	70	68	80	80
17	68	69	62	71	59	64	64	69	69	68	73	---
18	68	64	85	65	58	64	64	68	71	70	70	95
19	68	65	64	65	59	63	64	70	72	68	73	82
20	60	63	64	65	66	61	63	66	69	70	75	80
21	60	63	66	65	81	62	63	70	71	65	78	82
22	47	63	83	65	81	66	61	75	68	70	73	75
23	43	63	70	68	81	65	60	77	71	70	70	80
24	88	69	66	62	81	64	61	74	70	70	68	80
25	78	66	65	65	80	64	61	73	70	68	63	78
26	60	63	64	63	80	64	62	72	68	72	70	80
27	65	63	65	62	78	61	60	73	70	70	63	83
28	63	64	70	62	68	63	58	71	68	70	78	79
29	63	65	60	74	---	61	58	74	65	75	75	75
30	63	65	62	73	---	62	58	72	73	72	73	80
31	60	---	67	75	---	63	---	70	---	70	70	---
MEAN	61	67	67	65	65	64	62	67	71	69	70	79

01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA--Continued

SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	145	253	60	219	9	12	13	9.1	18	10	12	11
2	330	1020	27	75	8	9.8	10	8.6	14	9.1	8	6.5
3	980	8880	17	42	10	11	10	9.2	22	14	15	7.6
4	150	486	25	58	6	6.6	11	9.5	44	32	9	6.9
5	90	97	37	77	3	3.2	11	8.9	24	19	41	63
6	19	26	28	53	6	6.5	54	45	17	11	21	29
7	17	19	18	32	500	3420	78	61	18	11	16	21
8	72	125	9	15	275	1820	12	8.7	17	9.9	12	12
9	1000	32100	10	15	30	122	7	5.5	16	9.1	10	9.2
10	400	24400	25	37	31	83	4	3.2	18	12	9	7.8
11	280	2230	13	19	30	73	9	6.3	38	37	8	6.7
12	93	427	8	12	32	80	6	3.9	17	20	8	6.5
13	32	105	13	19	17	39	4	2.7	24	28	100	275
14	23	58	6	8.1	13	24	5	3.9	17	19	490	1750
15	14	36	4	5.2	7	12	2	1.7	24	24	100	368
16	16	28	8	10	8	14	1	0.73	19	17	60	162
17	16	26	7	8.2	11	19	2	1.3	6	4.6	40	87
18	23	45	9	10	5	7.9	2	1.3	3	2.0	35	65
19	10	16	9	10	2	2.9	10	6.8	7	5.4	30	51
20	137	516	7	7.6	7	9.9	28	18	12	9.1	20	38
21	470	5300	5	5.2	10	15	99	61	10	7.4	25	37
22	58	257	7	7.2	21	24	36	22	2	1.4	60	125
23	30	92	6	7.8	19	27	80	51	5	3.8	170	744
24	90	238	5	4.7	14	17	35	24	8	6.4	70	198
25	100	348	7	6.6	29	21	1	0.76	41	56	50	117
26	440	5520	9	8.4	17	20	4	2.9	11	12	40	81
27	99	488	7	6.6	12	15	2	1.4	7	7.1	35	63
28	42	154	5	4.9	9	9.7	9	6.1	11	11	30	52
29	27	82	11	18	15	15	14	9.1	---	---	50	93
30	21	56	17	35	12	12	45	28	---	---	53	86
31	133	586	---	---	11	12	40	26	---	---	65	95
TOTAL	---	84175	---	836.4	---	5961.4	---	445.59	---	407.1	---	4646.0
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	53	68	10	7.6	7	2.1	9	0.78	41	5.5	154	125
2	45	56	23	17	9	2.9	10	0.70	33	4.3	78	74
3	72	102	28	26	5	1.3	6	0.37	42	5.2	157	142
4	50	70	25	20	5	1.1	8	0.45	56	10	120	100
5	150	741	25	20	2	0.41	16	0.82	66	17	81	29
6	128	491	18	14	3	0.60	19	0.92	58	16	142	105
7	86	311	11	9.0	5	1.1	18	0.87	75	13	413	305
8	76	228	5	4.2	4	0.81	35	1.5	93	20	63	33
9	54	137	6	4.4	5	1.0	120	6.5	68	17	58	36
10	45	108	6	3.7	3	0.70	350	26	262	225	33	21
11	58	117	4	2.3	2	0.53	740	4490	72	29	44	14
12	52	95	4	2.3	6	1.3	440	1820	44	11	20	5.3
13	47	78	3	1.7	5	0.96	120	133	40	7.6	16	3.5
14	51	79	3	1.5	5	0.85	63	40	47	9.0	23	4.3
15	49	71	3	1.5	6	1.1	58	23	68	21	11	1.9
16	54	72	3	1.4	7	1.6	56	16	42	9.6	2	0.33
17	57	72	4	1.8	10	2.1	50	12	43	8.1	3	0.57
18	26	31	6	2.6	9	1.7	45	9.2	47	9.6	11	2.0
19	17	19	7	2.9	8	1.7	47	9.3	37	6.7	5	0.86
20	24	24	5	2.1	10	1.8	42	10	52	8.0	8	2.2
21	15	15	2	0.78	6	0.97	46	11	53	7.3	2	0.63
22	9	8.7	5	1.8	10	1.6	220	276	46	6.0	3	0.81
23	15	14	8	2.4	13	1.6	60	19	19	2.3	3	0.60
24	16	15	10	3.3	13	1.5	45	9.6	32	4.4	10	1.6
25	25	27	6	2.2	8	0.95	40	7.0	110	60	9	1.4
26	18	18	15	6.6	9	1.5	46	10	22	4.5	9	1.5
27	11	10	10	3.8	8	1.6	47	11	13	2.9	10	1.9
28	9	7.5	5	1.6	7	1.0	37	7.1	13	2.2	18	4.2
29	9	7.6	1	0.29	5	0.58	40	6.3	15	2.2	4	0.80
30	11	8.9	1	0.27	5	0.50	43	6.0	10	1.4	7	1.2
31	---	---	5	1.3	---	---	53	7.2	42	11	---	---
TOTAL	---	3295.7	---	170.56	---	37.24	---	6969.61	---	559.6	---	971.60

TOTAL LOAD FOR YEAR: 108477.8 TONS.

01665000 MOUNTAIN RUN NEAR CULPEPER, VA

LOCATION.--Lat 38°28'50", long 78°03'10", Culpeper County, Hydrologic Unit 02080103, on left bank 30 ft (9 m) upstream from bridge on State Highway 641, 2.4 mi (3.9 km) upstream from Bond Branch, and 3.0 mi (4.8 km) west of Culpeper.

DRAINAGE AREA.--15.9 mi² (41.2 km²), of which 10.9 mi² (28.2 km²) are above flood-detention structures.

PERIOD OF RECORD.--September 1949 to current year.

REVISED RECORDS.--WSP 1332: 1950-51. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 389.46 ft (118.707 m) above mean sea level.

REMARKS.--Records good. Some regulation since 1959 by two reservoirs, combined flood storage, 2,240 acre-ft (2.76 hm³); 531 acre-ft (0.655 hm³) additional storage used for low-water regulation for municipal supply for town of Culpeper. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--28 years, 15.9 ft³/s (0.450 m³/s), 13.58 in/yr (345 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,440 ft³/s (154 m³/s) Aug. 18, 1955, from rating curve extended above 910 ft³/s (26 m³/s) on basis of slope-area measurement of peak flow; maximum gage height, 11.20 ft (3.414 m) Dec. 4, 1950; minimum discharge, 0.09 ft³/s (0.003 m³/s) Sept. 30, Oct. 1, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft³/s (8.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	0900	*2110	59.8	a9.22	2.810	July 11	0300	545	15.4	6.31	1.923
Oct. 25	2230	396	11.2	5.57	1.698						

a From high-water mark in well.

Minimum discharge, 0.80 ft³/s (0.023 m³/s) Aug. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	27	15	8.7	7.2	9.8	8.7	5.8	6.9	5.1	1.6	1.1
2	106	29	13	8.3	7.2	9.0	9.3	7.7	6.7	4.9	1.5	7.4
3	101	14	12	8.1	7.8	8.5	9.9	9.3	6.7	4.9	1.7	16
4	28	16	11	8.5	11	9.9	15	7.4	6.5	4.7	2.3	3.2
5	14	15	10	9.0	11	12	45	8.5	6.3	4.5	2.1	2.2
6	10	14	11	9.4	8.7	10	28	8.3	6.3	4.7	2.3	2.5
7	9.0	13	106	9.9	7.8	9.4	19	9.3	6.5	4.9	2.3	2.1
8	32	12	58	9.0	7.2	8.7	15	7.2	6.1	4.9	1.7	1.8
9	419	12	26	9.0	7.2	8.5	12	6.0	6.3	5.1	2.4	5.6
10	151	12	20	10	8.5	8.3	11	5.2	6.5	5.1	2.2	3.6
11	181	12	18	9.3	9.6	8.0	11	5.1	6.1	114	1.7	2.2
12	161	13	19	8.6	10	8.0	10	5.2	6.0	40	3.2	1.7
13	82	14	17	8.0	11	28	9.6	5.1	5.8	8.6	4.0	1.6
14	46	13	14	8.3	10	25	9.0	4.5	5.6	4.7	2.3	1.6
15	60	12	14	9.0	9.6	18	8.7	4.4	6.1	3.6	1.8	1.6
16	15	12	14	9.3	9.0	14	8.3	4.2	6.1	3.0	1.7	2.0
17	14	11	14	8.7	8.5	12	8.0	3.8	5.8	2.9	2.3	2.3
18	14	11	12	8.0	8.0	11	7.6	3.8	6.0	3.3	2.2	2.1
19	13	11	12	7.4	8.0	10	7.6	4.5	6.0	3.0	1.7	1.8
20	121	11	12	7.2	8.0	10	7.2	4.4	5.6	2.9	1.5	4.4
21	115	10	13	7.4	8.0	11	6.9	4.0	5.4	3.0	1.2	2.6
22	45	10	10	7.2	8.0	27	6.7	3.7	5.2	3.0	1.2	2.0
23	25	9.3	10	7.2	8.3	22	6.5	3.3	5.4	2.5	1.4	1.8
24	22	9.6	10	7.6	10	16	6.7	3.2	5.6	2.3	2.2	1.8
25	45	9.9	9.9	8.5	14	13	6.7	4.9	6.3	2.3	3.0	2.0
26	183	9.9	11	8.3	11	12	6.3	6.1	6.9	2.1	1.8	2.1
27	88	10	11	8.5	11	11	6.0	5.4	5.8	1.5	1.4	2.1
28	37	11	10	8.7	11	11	6.0	4.7	5.4	1.5	.95	2.0
29	22	24	10	9.3	---	12	7.2	4.5	5.4	1.5	.85	1.8
30	20	21	9.9	8.8	---	11	6.1	4.5	5.4	1.5	.85	1.6
31	44	---	9.8	7.6	---	9.9	---	5.6	---	1.6	.95	---
TOTAL	2309.0	408.7	542.6	261.0	256.6	394.0	325.0	169.6	180.7	257.4	58.30	86.6
MEAN	74.5	13.6	17.5	8.42	9.16	12.7	10.8	5.47	6.02	8.30	1.88	2.89
MAX	419	29	106	10	14	28	45	9.3	6.9	114	4.0	16
MIN	9.0	9.3	9.8	7.2	7.2	8.0	6.0	3.2	5.2	1.5	.85	1.1
CFSM	4.69	.86	1.10	.53	.58	.80	.68	.34	.38	.52	.12	.18
IN.	5.40	.96	1.27	.61	.60	.92	.76	.40	.42	.60	.14	.20

CAL YR 1976 TOTAL 7665.75 MEAN 20.9 MAX 419 MIN .85 CFSM 1.31 IN 17.93
WTR YR 1977 TOTAL 5250.20 MEAN 14.4 MAX 419 MIN .85 CFSM .91 IN 12.28

01665500 RAPIDAN RIVER NEAR RUCKERSVILLE, VA

LOCATION.--Lat 38°16'50", long 78°20'25", Madison County, Hydrologic Unit 02080103, on left bank at upstream side of bridge on U.S. Highway 29, 0.2 mi (0.3 km) downstream from Elk Run, 1.7 mi (2.7 km) upstream from White Run, 3.6 mi (5.8 km) northeast of Ruckersville, and at mile 63.5 (102.2 km).

DRAINAGE AREA.--114 mi² (295 km²).

PERIOD OF RECORD.--September 1942 to current year.

REVISED RECORDS.--WSP 1171: 1944-45(M). WSP 1382: 1943(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 439.44 ft (133.941 m) above mean sea level.

REMARKS.--Records good except those for winter period, which are fair, and those after July 6, which are poor. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--35 years, 144 ft³/s (4.078 m³/s), 17.15 in/yr (436 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,700 ft³/s (869 m³/s) Oct. 15, 1942, gage height, 20.8 ft (6.34 m), from floodmark in gage house, from rating curve extended above 12,000 ft³/s (340 m³/s) on basis of slope-area measurement at gage height 17.78 ft (5.419 m); minimum daily, 0.90 ft³/s (0.025 m³/s) Sept. 12, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,400 ft³/s (40 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1100	*8880	251	12.56	3.828	Oct. 25	2400	2270	64.3	5.74	1.750
Oct. 20	1800	1420	40.2	4.45	1.356						

Minimum daily discharge, 3.0 ft³/s (0.085 m³/s) Aug. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	95	241	119	70	51	79	123	67	40	10	3.4	6.0
2	310	212	113	86	52	76	123	67	36	8.8	4.0	6.0
3	280	196	104	66	57	77	119	67	29	8.0	12	8.6
4	126	182	99	80	74	86	155	79	25	7.4	46	9.6
5	96	167	97	76	65	121	357	101	26	7.3	14	7.1
6	73	156	94	69	60	106	306	68	27	6.8	11	9.0
7	63	146	570	72	55	131	259	62	23	5.6	4.6	10
8	136	137	301	68	52	95	229	62	22	4.6	4.0	13
9	3060	130	277	69	50	91	203	56	26	4.6	14	12
10	802	124	233	67	67	88	185	56	26	5.9	8.4	14
11	456	120	215	66	62	86	170	53	22	5.9	4.4	9.6
12	323	126	220	66	69	85	156	51	21	9.6	4.3	7.2
13	253	117	192	72	65	590	145	48	18	18	4.3	5.8
14	205	110	171	67	62	532	138	46	22	9.6	8.4	5.1
15	176	108	166	61	57	373	131	45	31	6.5	4.9	6.6
16	153	105	159	66	55	240	123	42	25	5.3	4.3	5.3
17	149	100	151	69	56	238	113	42	25	6.6	8.5	8.6
18	134	99	141	60	60	212	109	34	41	7.1	4.6	9.6
19	126	95	133	66	66	196	105	30	25	6.5	4.9	9.0
20	616	93	133	67	61	173	99	37	19	7.7	4.0	13
21	465	92	132	60	59	154	95	35	17	7.1	3.0	17
22	313	89	120	56	59	261	92	33	15	8.4	3.4	12
23	252	85	110	56	61	238	89	32	16	6.5	3.4	10
24	279	86	102	63	77	208	90	32	15	5.3	7.7	9.0
25	459	83	98	70	109	198	86	37	20	4.6	18	9.0
26	936	83	107	68	87	177	79	41	31	7.1	11	8.0
27	609	86	100	66	86	163	76	32	20	7.7	7.7	8.3
28	321	86	95	61	85	163	73	29	17	6.5	7.1	7.6
29	271	103	90	57	---	153	75	27	14	4.6	4.9	7.0
30	230	145	87	55	---	140	69	35	11	4.6	4.0	6.5
31	309	---	90	52	---	130	---	32	---	4.6	4.3	---
TOTAL	11835	3776	4895	2059	1819	5631	4170	1487	699	216.8	270.1	263.1
MEAN	382	126	158	66.4	65.0	182	139	48.0	23.3	6.99	8.71	8.77
MAX	3060	241	570	86	109	590	357	101	41	18	46	17
MIN	63	83	87	52	50	72	69	27	11	4.6	3.0	6.0
CFSM	3.35	1.11	1.39	.58	.57	1.60	1.22	.42	.20	.06	.08	.08
IN.	3.86	1.23	1.60	.67	.59	1.84	1.36	.49	.23	.07	.09	.09

CAL YR 1976 TOTAL 54457.2 MEAN 149 MAX 3060 MIN 5.7 CFSM 1.31 IN 17.84
WTR YR 1977 TOTAL 37118.0 MEAN 102 MAX 3060 MIN 3.0 CFSM .90 IN 12.11

01666500 ROBINSON RIVER NEAR LOCUST DALE, VA

LOCATION.--Lat 38°19'30", long 78°05'45", Madison County, Hydrologic Unit 02080103, on right bank 100 ft (30 m) upstream from bridge on State Highway 614, 1.1 mi (1.8 km) upstream from Great Run, 1.7 mi (2.7 km) upstream from mouth, 2.0 mi (3.2 km) southeast of Locust Dale, and 3.4 mi (5.5 km) downstream from Crooked Run.

DRAINAGE AREA.--179 mi^2 (464 km^2).

PERIOD OF RECORD.--July 1943 to current year. Prior to October 1965, published as Robertson River near Locust Dale.

REVISED RECORDS.--WSP 1171: 1948(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 283.70 ft (86.472 m) above mean sea level.

REMARKS.--Records good except those for winter periods, which are fair. Small diurnal fluctuation at low flow caused by Banco Mill 9 mi (14 km) upstream at State Highway 231. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--34 years, 212 ft^3/s (6.004 m^3/s), 16.08 in/yr (408 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,500 ft^3/s (694 m^3/s) June 22, 1972, gage height, 20.92 ft (6.376 m), from rating curve extended above 9,100 ft^3/s (260 m^3/s) on basis of records for other stations in Rappahannock River basin; minimum, 1.2 ft^3/s (0.034 m^3/s) Sept. 7, 13, 1954; minimum daily, 1.8 ft^3/s (0.051 m^3/s) Sept. 13, 27, 1954.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 15, 1942, reached a stage of 23.9 ft (7.28 m), from floodmarks, discharge, about 44,000 ft^3/s (1,200 m^3/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,700 ft^3/s (48 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 9	1700	*15500	439	18.49	5.636	Dec. 7	1130	1780	50.4	7.46	2.274
Oct. 20	1930	2770	78.4	9.93	3.027	July 11	1130	2330	66.0	8.83	2.691
Oct. 26	0200	4360	123	12.87	3.923						

Minimum discharge, 9.0 ft^3/s (0.25 m^3/s) July 8-9, 10, gage height, 0.88 ft (0.268 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	172	359	183	118	90	110	136	83	52	21	16	112
2	436	303	172	123	89	102	134	81	50	19	15	119
3	719	278	160	130	104	97	136	90	44	17	25	216
4	273	256	157	105	127	106	162	144	38	16	69	42
5	187	235	152	112	114	153	455	204	36	15	28	31
6	146	217	148	103	102	139	380	101	39	15	20	31
7	125	207	993	100	97	130	296	87	38	13	32	34
8	217	198	553	96	92	118	257	89	33	11	26	31
9	7440	188	373	108	100	113	223	79	37	9.8	19	35
10	1720	185	307	100	110	109	202	74	42	12	34	40
11	586	177	280	96	120	105	188	75	35	863	24	30
12	412	182	289	105	108	107	176	73	33	195	28	25
13	326	184	254	118	117	478	161	69	31	132	38	24
14	273	171	218	105	109	516	153	66	31	63	30	22
15	232	168	209	100	104	358	145	63	46	46	25	22
16	206	162	209	106	96	283	136	60	39	38	21	23
17	201	157	200	115	89	231	128	58	34	33	33	28
18	197	155	186	126	95	206	122	56	39	35	34	26
19	176	151	178	118	101	182	117	60	33	29	25	22
20	1030	146	180	109	90	171	112	54	28	30	21	57
21	942	143	181	105	85	159	107	52	27	29	19	37
22	426	141	164	102	85	252	104	48	23	35	17	27
23	330	136	160	100	86	303	100	47	22	23	17	24
24	299	133	153	117	99	239	101	46	22	20	19	23
25	519	134	142	105	162	209	104	53	26	20	48	24
26	2220	132	152	100	126	190	97	62	69	28	27	23
27	568	133	140	100	120	175	93	50	40	24	22	24
28	422	132	128	96	119	173	89	45	32	19	19	22
29	355	285	120	95	---	170	93	42	29	17	18	21
30	311	263	130	92	---	156	87	42	24	17	16	19
31	464	---	110	90	---	146	---	46	---	17	15	---
TOTAL	21925	5691	6981	3295	2936	5986	4790	2199	1072	1861.8	798	1216
MEAN	707	190	225	106	105	193	160	70.9	35.7	60.1	25.7	40.5
MAX	7440	359	993	130	162	516	455	204	69	863	69	216
MIN	125	132	110	90	85	97	87	42	22	9.8	15	19
CFSM	3.95	1.06	1.26	.59	.59	1.08	.89	.40	.20	.34	.14	.23
IN.	4.56	1.18	1.45	.68	.61	1.24	1.00	.46	.22	.39	.17	.25

CAL YR 1976 TOTAL 89513.0 MEAN 245 MAX 7440 MIN 26 CFSM 1.37 IN 18.60
WTR YR 1977 TOTAL 58748.8 MEAN 161 MAX 7440 MIN 9.8 CFSM .90 IN 12.21

01667500 RAPIDAN RIVER NEAR CULPEPER, VA

LOCATION.--Lat 38°21'01", long 77°58'31", Culpeper County, Hydrologic Unit 02080103, on left bank 0.7 mi (1.1 km) upstream from Cedar Run and bridge on U.S. Highway 522, 8.5 mi (13.7 km) south of Culpeper, and at mile 29.6 (47.6 km).

DRAINAGE AREA.--472 mi² (1,222 km²).

PERIOD OF RECORD.--October 1930 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 741: 1931. WSP 801: 1934(M), 1936(M). WSP 1051: 1943-44. WSP 1271: 1932(M), 1933-35. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 241.36 ft (73.567 m) above mean sea level.

REMARKS.--Records good except those for winter periods, which are fair. Diurnal fluctuation at low flow caused by mills at Rapidan and on Robinson River at State Highway 231. National Weather Service rain gage and gage-height telemeters at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--47 years, 514 ft³/s (14.56 m³/s), 14.79 in/yr (376 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,100 ft³/s (1,080 m³/s) Oct. 16, 1942, gage height, 30.3 ft (9.24 m), from floodmark, from rating curve extended above 43,000 ft³/s (1,200 m³/s) on basis of slope-area measurement of peak flow; minimum, 2.1 ft³/s (0.059 m³/s) Oct. 4, 5, 11, 1954; minimum daily, 2.2 ft³/s (0.062 m³/s) Oct. 4, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,500 ft³/s (130 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 10	0230	*15000	425	17.50	5.334	Oct. 26	0000	7560	214	11.08	3.377
Oct. 20	2330	6100	173	9.15	2.789						

Minimum discharge, 18 ft³/s (0.51 m³/s) July 10; minimum gage height, 0.32 ft (0.098 m) July 10, Aug. 3, 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	367	986	446	251	185	290	340	200	125	46	23	104
2	686	775	395	275	187	270	341	204	132	39	23	62
3	1960	685	368	305	190	254	356	215	117	35	21	302
4	612	629	330	280	235	262	381	237	103	32	162	151
5	383	574	356	270	250	349	1120	714	94	30	105	80
6	291	522	345	290	210	351	1080	303	95	27	56	49
7	246	492	2550	265	195	326	771	231	101	26	46	45
8	373	464	1700	260	190	302	664	230	86	23	44	45
9	7310	432	994	255	188	286	578	201	83	22	33	46
10	7790	422	782	242	185	275	521	177	95	20	326	72
11	1680	403	705	238	260	248	481	174	89	777	107	57
12	1120	408	745	235	230	267	443	171	81	259	62	42
13	853	417	672	265	270	862	410	166	76	166	70	34
14	691	383	564	240	280	1560	388	157	72	96	63	29
15	567	369	536	280	240	974	372	151	66	65	49	27
16	495	357	533	250	230	758	367	143	109	51	42	28
17	467	360	505	234	210	614	329	130	92	42	38	35
18	481	336	463	239	190	539	315	130	86	45	53	39
19	408	326	431	224	234	496	305	140	101	52	42	35
20	1980	317	430	262	238	453	293	136	79	58	38	48
21	3370	309	446	228	220	432	276	128	69	52	32	63
22	1310	302	370	212	212	595	268	123	68	210	29	40
23	912	288	360	208	210	463	259	121	53	75	27	38
24	773	277	335	215	245	618	260	118	53	40	30	33
25	878	277	325	250	418	599	265	122	55	31	56	31
26	5600	275	396	240	352	492	246	140	97	33	57	32
27	1830	277	363	220	320	452	235	130	99	37	46	30
28	1200	281	340	205	321	433	227	119	76	30	30	31
29	970	595	343	200	---	436	235	111	62	26	31	28
30	827	685	309	195	---	401	220	106	54	26	27	24
31	1270	---	311	188	---	376	---	121	---	26	26	---
TOTAL	47600	13203	17746	7516	6670	15307	12326	5580	2586	2492	1796	1678
MEAN	1535	440	572	242	238	494	411	180	86.2	80.4	57.9	55.9
MAX	7790	986	2550	305	418	1560	1120	714	132	777	326	302
MIN	246	275	309	188	185	254	220	106	53	20	21	24
CFSM	3.25	.93	1.21	.51	.50	1.05	.87	.38	.18	.17	.12	.12
IN.	3.75	1.04	1.40	.59	.53	1.21	.97	.44	.20	.20	.14	.13

CAL YR 1976 TOTAL 204462 MEAN 559 MAX 7790 MIN 61 CFSM 1.18 IN 16.11
WTR YR 1977 TOTAL 134506 MEAN 369 MAX 7790 MIN 20 CFSM .78 IN 10.60

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA

LOCATION.--Lat 38°19'20", long 77°31'05", Spotsylvania County, Hydrologic Unit 02080104, on right bank 1.6 mi (2.6 km) upstream from dam of Virginia Electric and Power Co., 2.2 mi (3.5 km) downstream from Motts Run, 3.8 mi (6.1 km) upstream from Fredericksburg, and at mile 4.4 (7.1 km).

DRAINAGE AREA.--1,596 mi² (4,134 km²).

PERIOD OF RECORD.--September 1907 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 801: 1924(M). WSP 951: 1937(M). WSP 1302: 1907-12, 1913(M), 1916(M), 1918(M), 1920-21(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 55.18 ft (16.819 m) above mean sea level. Prior to Jan. 15, 1922, nonrecording gage, and Jan. 15, 1922, to Aug. 2, 1966, water-stage recorder at same site at datum 1.00 ft (0.305 m) higher.

REMARKS.--Records good. No gage-height record July 12 to Sept. 2. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--70 years, 1,637 ft³/s (46.36 m³/s), 13.93 in/yr (354 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 140,000 ft³/s (3,960 m³/s) Oct. 16, 1942, gage height, 26.9 ft (8.20 m), present datum, from floodmarks, from rating curve extended above 78,000 ft³/s (2,200 m³/s) on basis of flow over dam and slope-area measurements at gage heights 23.1 ft (7.04 m) and 26.9 ft (8.20 m), present datum; minimum, 5 ft³/s (0.14 m³/s) Oct. 11, 12, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1889 was probably several feet lower than that of Oct. 16, 1942.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 16,000 ft³/s (450 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 10	1500	*50700	1440	14.38	4.383	Oct. 26	1700	21500	609	9.41	2.868
Oct. 21	1000	16900	479	8.44	2.573						

Minimum discharge, 74 ft³/s (2.10 m³/s) July 10; minimum gage height, 1.15 ft (0.351 m) July 10, 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	514	4200	1900	626	700	870	1030	582	281	148	105	145
2	2760	2700	1130	682	650	765	941	562	295	133	109	250
3	6380	2190	1050	618	635	699	1000	611	308	117	100	385
4	3570	1900	857	995	722	663	1070	700	286	104	105	736
5	1790	1800	811	923	1060	739	2450	1430	240	96	109	432
6	1200	1600	860	676	1310	1160	4760	1260	246	88	135	270
7	891	1460	4800	847	873	968	2940	798	228	86	265	727
8	764	1370	9300	1020	719	861	2280	676	229	103	195	458
9	11100	1260	3900	839	663	740	1930	632	247	109	140	301
10	44100	1200	2620	853	596	733	1650	533	225	91	175	329
11	12100	1180	2230	1150	726	795	1490	676	226	1100	270	322
12	3990	1140	2250	912	962	685	1370	656	256	5000	460	266
13	2860	1200	2300	809	976	1390	1750	645	237	1200	365	217
14	2200	1190	1820	711	1200	5610	1150	631	212	400	550	182
15	1750	1080	1540	906	970	3310	1070	608	202	355	360	163
16	1480	1040	1520	1020	970	2360	1000	393	196	275	285	150
17	1330	982	1530	1100	843	1860	931	378	237	245	220	160
18	1340	935	1450	897	716	1530	869	366	246	215	165	157
19	1240	923	1270	833	662	1380	826	360	218	185	135	163
20	2170	890	1210	880	655	1240	792	355	217	165	145	183
21	13100	857	1430	881	590	1100	751	351	222	170	140	168
22	4760	833	1310	816	572	1430	707	340	191	235	115	221
23	2960	806	980	843	590	3690	681	330	172	905	105	230
24	2290	770	1060	740	633	2460	666	319	158	435	95	189
25	2420	760	1020	761	990	1870	675	336	150	195	110	172
26	17800	762	1090	786	1280	1570	736	351	170	160	135	162
27	4850	763	1150	805	980	1400	676	373	181	145	200	156
28	3890	769	993	760	933	1290	626	362	241	155	220	159
29	2940	1030	1030	920	---	1310	628	322	213	150	135	175
30	2460	2540	933	954	---	1280	631	295	172	120	125	183
31	4110	---	827	766	---	1140	---	283	---	110	110	---
TOTAL	169453	40280	55697	26837	23073	46937	37772	15560	6716	13271	6065	7829
MEAN	5466	1343	1797	866	824	1514	1259	502	224	428	196	261
MAX	44100	4200	9300	1150	1310	5610	4760	1430	308	5000	365	736
MIN	514	760	800	682	572	663	626	283	150	86	95	145
CFSM	3.43	.84	1.13	.54	.52	.95	.79	.32	.14	.27	.12	.16
IN.	3.95	.94	1.30	.63	.54	1.09	.88	.36	.16	.31	.14	.18

CAL YR 1976 TOTAL 700501 MEAN 1914 MAX 44100 MIN 130 CFSM 1.20 IN 16.33
WTR YR 1977 TOTAL 449450 MEAN 1231 MAX 44100 MIN 86 CFSM .77 IN 10.48

01668500 CAT POINT CREEK NEAR MONTROSS, VA

LOCATION.--Lat 38°02'23", long 76°49'38", Richmond County, Hydrologic Unit 02080104, on right bank 200 ft (61 m) upstream from bridge on State Highway 637, 1.7 mi (2.7 km) west of Farmers Fork, 3.8 mi (6.1 km) south of Montross, and 11.4 mi (18.3 km) upstream from mouth.

DRAINAGE AREA.--45.6 mi² (118.1 km²).

PERIOD OF RECORD.--September 1943 to current year.

REVISED RECORDS.--WSP 1382: 1944(M), 1945, 1946-51(M), 1952(P), 1953-54(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2.93 ft (0.893 m) above mean sea level. Prior to Aug. 19, 1953, nonrecording gage near right bank at downstream side of highway bridge at same datum.

REMARKS.--Records good except those for January and February, which are fair. Slight diurnal fluctuation at low flow caused by gristmill at Montross. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--34 years, 43.1 ft³/s (1.221 m³/s), 12.84 in/yr (326 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,820 ft³/s (193 m³/s) Aug. 20, 1969, gage height, 10.45 ft (3.185 m), from rating curve extended above 1,400 ft³/s (40 m³/s); no flow at times in 1943, 1957, 1959, 1960, 1966, and 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in September 1935 exceeded 9.3 ft (2.83 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 250 ft³/s (7.1 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 3	1500	*408	11.6	5.85	1.783	Oct. 26	1630	287	8.13	5.53	1.686

No flow Aug. 12-16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	236	77	60	29	32	40	32	20	2.9	6.4	2.8	5.0
2	236	66	61	26	32	43	32	19	2.6	5.3	2.4	4.5
3	342	51	36	26	32	41	32	32	2.2	4.1	2.7	3.8
4	183	47	36	24	30	41	60	45	1.7	4.0	2.6	4.4
5	71	42	32	28	35	42	60	41	1.5	3.5	2.1	3.7
6	39	37	31	29	35	43	46	66	3.4	3.8	1.6	3.6
7	29	36	47	29	30	42	51	40	16	2.6	1.2	13
8	26	36	126	29	38	40	46	43	4.3	3.0	.90	11
9	47	32	90	27	41	38	40	45	4.5	6.3	.05	39
10	47	32	66	57	44	37	37	36	6.6	4.5	.32	61
11	35	31	60	66	53	36	36	28	5.5	10	.10	56
12	24	37	58	56	56	35	36	23	2.8	10	.00	31
13	25	45	51	35	62	36	32	19	2.1	21	.00	19
14	22	43	42	44	56	38	30	17	1.9	40	.00	13
15	21	40	40	60	50	37	29	15	2.4	21	.00	11
16	21	36	40	56	46	36	28	12	3.3	10	.00	9.8
17	27	36	42	52	38	33	27	11	4.1	5.8	.02	11
18	35	33	39	47	35	33	26	10	4.9	3.5	2.3	9.5
19	36	31	35	41	35	33	25	9.6	5.4	2.3	1.5	9.8
20	50	30	35	30	40	41	26	9.0	6.6	1.0	4.7	9.5
21	101	29	47	41	38	46	22	8.5	5.0	1.7	4.7	8.5
22	86	28	39	39	35	59	22	8.0	4.2	1.9	4.2	7.7
23	95	29	35	38	35	78	21	7.8	4.2	.90	2.7	7.2
24	63	27	33	49	53	55	22	7.7	4.2	1.0	4.9	6.6
25	68	27	34	45	60	45	25	12	4.3	2.6	4.8	6.9
26	222	28	50	49	56	41	26	27	11	2.9	4.5	5.5
27	222	28	58	46	69	39	23	42	10	2.6	4.6	5.2
28	118	30	42	45	55	38	21	19	12	2.9	4.6	6.6
29	60	60	40	56	---	36	22	7.9	12	3.3	4.6	6.5
30	57	86	33	35	---	36	21	6.2	8.3	3.3	4.3	6.7
31	79	---	32	32	---	35	---	3.3	---	2.9	4.3	---
TOTAL	2638	1190	1475	1260	1223	1271	950	723.8	159.9	194.10	78.79	381.1
MEAN	85.1	39.7	47.6	40.6	43.7	41.0	31.7	23.3	5.33	6.26	2.54	12.7
MAX	342	86	126	66	69	78	60	66	16	40	4.8	61
MIN	21	27	31	24	32	33	21	3.3	1.5	.90	.00	3.6
CFSM	1.87	.87	1.04	.89	.96	.90	.70	.51	.12	.14	.06	.28
IN.	2.16	.97	1.20	1.03	1.00	1.04	.77	.59	.13	.16	.06	.31

CAL YR 1976 TOTAL 18573.66 MEAN 50.6 MAX 586 MIN .66 CFSM 1.11 IN 15.11
WTR YR 1977 TOTAL 11550.69 MEAN 31.6 MAX 342 MIN .00 CFSM .69 IN 9.47

01668800 HOSKINS CREEK NEAR TAPPAHANNOCK, VA

LOCATION.--Lat 37°55'38", long 76°57'16", Essex County, Hydrologic Unit 02080104, at bridge on State Highway 717, 0.4 mi (0.6 km) upstream from Criddlin Swamp, 2.9 mi (4.7 km) downstream from site of Hutchinson Mill Pond (destroyed by flood of August 1969), and 5.0 mi (8.0 km) west of Tappahannock.

DRAINAGE AREA.--15.5 mi^2 (40.1 km^2).

PERIOD OF RECORD.--October 1964 to September 1969, June 1970 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 34.30 ft (10.455 m) above mean sea level.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--12 years, 16.0 ft^3/s (0.453 m^3/s), 14.02 in/yr (356 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,380 ft^3/s (39.1 m^3/s) Aug. 20, 1969, gage height, 10.23 ft (3.118 m), from rating curve extended above 100 ft^3/s (2.8 m^3/s) on basis of velocity-area study; minimum, 0.20 ft^3/s (0.006 m^3/s) Sept. 12, 13, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 69 ft^3/s (1.95 m^3/s) Oct. 26, gage height, 3.22 ft (0.981 m), no peak above base of 100 ft^3/s (2.8 m^3/s); minimum, 0.45 ft^3/s (0.013 m^3/s) Aug. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	27	15	10	11	19	8.8	8.1	5.6	2.8	1.3	1.3
2	43	20	12	8.7	11	16	9.1	7.8	5.3	1.8	1.9	1.1
3	41	16	10	8.0	11	14	9.6	9.4	5.2	1.5	1.9	1.5
4	25	14	8.9	8.9	13	14	16	10	4.5	1.2	2.1	2.8
5	15	13	8.3	9.5	13	17	28	13	4.3	1.0	1.9	3.4
6	10	12	8.5	9.8	12	16	25	12	4.3	1.1	1.5	3.4
7	8.6	12	25	10	13	16	17	24	4.4	1.3	1.1	8.1
8	7.8	11	35	10	13	14	14	24	4.2	2.2	.92	6.9
9	22	11	22	9.1	14	13	12	16	4.3	6.5	.70	29
10	19	12	16	21	15	12	12	12	5.1	6.0	.57	48
11	14	11	14	29	17	12	12	9.4	5.0	4.8	.55	21
12	9.7	15	15	19	19	12	12	8.2	4.2	9.5	.50	7.2
13	7.5	19	14	12	21	14	11	7.3	3.5	18	.55	4.2
14	6.4	17	11	15	19	14	11	6.7	3.0	11	.69	3.4
15	6.5	15	11	36	17	12	11	6.2	2.8	6.8	.55	3.2
16	6.4	15	11	30	15	12	10	5.2	2.7	4.7	.50	3.3
17	11	13	11	22	13	11	10	5.2	3.0	3.1	.55	4.1
18	16	12	10	16	12	13	10	5.3	3.5	2.4	.69	3.9
19	12	12	10	14	12	14	10	5.2	3.1	1.8	.60	3.6
20	23	11	11	13	14	24	10	4.8	2.9	1.6	.55	3.3
21	43	10	15	14	13	24	9.8	4.7	2.7	1.5	.55	3.2
22	27	10	11	13	12	28	9.6	4.5	2.4	1.6	.55	3.1
23	17	9.8	10	13	12	28	9.4	4.5	2.2	1.4	.55	3.0
24	13	9.6	9.3	16	18	18	9.6	4.6	2.1	1.2	.96	3.0
25	16	8.5	8.9	18	30	14	9.8	9.6	2.0	1.3	2.8	3.1
26	60	8.5	16	18	21	12	9.4	22	2.1	1.8	2.0	2.8
27	46	8.8	16	17	19	11	8.7	15	2.4	1.7	1.6	2.7
28	28	9.3	21	17	27	11	8.0	9.9	2.7	1.5	1.4	2.6
29	20	24	13	20	---	12	9.4	6.3	4.2	1.3	1.4	2.6
30	17	24	11	12	---	11	9.3	5.0	3.7	1.2	1.4	2.5
31	29	---	11	11	---	10	---	5.1	---	1.2	1.5	---
TOTAL	660.9	410.5	420.9	479.9	437	468	351.5	291.0	107.4	104.8	34.33	191.3
MEAN	21.3	13.7	13.6	15.5	15.6	15.1	11.7	9.39	3.58	3.38	1.11	6.38
MAX	60	27	35	36	30	28	28	24	5.6	18	2.8	48
MIN	6.4	8.5	8.3	8.0	11	10	8.0	4.5	2.0	1.0	.50	1.1
CFSM	1.37	.88	.88	1.00	1.01	.97	.76	.61	.23	.22	.07	.41
IN.	1.59	.99	1.01	1.15	1.05	1.12	.84	.70	.26	.25	.08	.46

CAL YR 1976 TOTAL 6152.60 MEAN 16.8 MAX 92 MIN 1.5 CFSM 1.08 IN 14.77
WTR YR 1977 TOTAL 3957.53 MEAN 10.8 MAX 60 MIN .50 CFSM .70 IN 9.50

01669000 PISCATAWAY CREEK NEAR TAPPAHANNOCK, VA

LOCATION.--Lat 37°52'37", long 76°54'03", Essex County, Hydrologic Unit 02080104, on right bank at upstream side of bridge on State Highway 691, 0.6 mi (1.0 km) south of Henley Fork, 2.3 mi (3.7 km) downstream from Sturgeon Swamp, and 4.2 mi (6.8 km) southwest of Tappahannock.

DRAINAGE AREA.--28.0 mi² (72.5 km²).

PERIOD OF RECORD.--July 1951 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2.50 ft (0.762 m) above mean sea level.

REMARKS.--Records good except those for January and February, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--26 years, 32.0 ft³/s (0.906 m³/s), 15.52 in/yr (394 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,380 ft³/s (67.4 m³/s) Aug. 20, 1969, gage height, 7.52 ft (2.292 m), from rating curve extended above 1,400 ft³/s (40 m³/s); minimum, 0.01 ft³/s (<0.001 m³/s) Oct. 2, 1954, gage height, 0.33 ft (0.101 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 107 ft³/s (3.03 m³/s) Oct. 3, 26, gage height, 3.24 ft (0.988 m), no peak above base of 250 ft³/s (7.1 m³/s); minimum, 0.45 ft³/s (0.013 m³/s) Aug. 15, 16, 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	48	33	26	25	46	26	18	10	5.6	1.8	2.0
2	57	34	28	23	26	36	25	16	14	3.6	2.0	1.5
3	91	31	26	22	28	32	27	16	11	1.9	2.7	1.4
4	42	29	25	24	27	32	36	18	8.2	1.5	3.9	1.5
5	27	28	24	25	27	35	70	25	6.8	1.1	3.2	1.6
6	21	27	24	25	27	35	67	26	6.0	1.1	2.4	.90
7	19	26	43	26	26	34	42	30	5.5	1.1	2.4	6.8
8	17	26	69	25	26	34	34	32	4.7	3.2	3.9	12
9	38	25	45	25	26	31	32	26	5.5	13	2.0	34
10	46	26	36	37	27	28	30	20	5.8	19	.86	69
11	23	24	35	61	29	28	29	14	6.0	22	.74	29
12	17	29	35	42	28	27	29	13	5.5	14	.66	9.5
13	15	35	35	36	31	29	27	12	4.4	13	.58	4.4
14	15	33	30	36	27	33	28	11	4.0	12	.54	3.8
15	14	30	28	59	25	30	26	10	3.8	8.2	.50	3.8
16	14	31	30	50	23	29	24	8.9	3.3	3.6	.50	3.8
17	18	28	30	40	23	26	22	8.8	3.9	2.1	.62	5.1
18	31	27	28	34	22	26	21	8.0	4.2	1.5	.86	6.9
19	23	25	25	31	23	28	22	7.6	5.3	1.4	.82	5.8
20	33	24	27	31	26	44	22	7.2	5.1	1.1	1.1	4.7
21	82	24	36	33	25	54	20	6.6	4.2	.98	1.6	4.0
22	42	23	32	31	25	50	20	6.2	3.3	.90	2.0	4.9
23	26	22	28	30	26	62	20	5.8	2.7	.82	2.0	3.4
24	25	22	27	32	30	42	19	6.2	2.5	.70	4.0	2.7
25	31	22	30	35	55	36	20	21	2.6	.98	18	2.7
26	87	22	36	34	40	33	20	70	3.0	1.5	19	2.6
27	69	23	38	33	38	30	20	32	3.6	1.5	7.8	2.6
28	39	23	31	33	58	30	18	17	4.6	2.1	4.2	2.2
29	34	44	30	35	---	31	20	10	4.4	2.0	2.7	2.2
30	31	50	28	31	---	31	22	8.9	5.8	2.0	2.3	2.2
31	46	---	27	27	---	29	---	8.9	---	1.8	2.1	---
TOTAL	1120	861	999	1032	818	1068	838	519.3	159.9	145.28	97.78	237.10
MEAN	36.1	28.7	32.2	33.3	29.2	34.5	27.9	16.8	5.33	4.69	3.15	7.90
MAX	91	50	69	61	58	62	70	70	14	22	19	69
MIN	14	22	24	22	22	26	18	5.8	2.5	.70	.50	.90
CFSM	1.29	1.03	1.15	1.19	1.04	1.23	1.00	.60	.19	.17	.11	.28
IN.	1.49	1.14	1.33	1.37	1.09	1.42	1.11	.69	.21	.19	.13	.31

CAL YR 1976 TOTAL 11996.90 MEAN 32.8 MAX 213 MIN 2.3 CFSM 1.17 IN 15.94
WTR YR 1977 TOTAL 7895.36 MEAN 21.6 MAX 91 MIN .50 CFSM .77 IN 10.49

01669500 DRAGON SWAMP NEAR CHURCH VIEW, VA

LOCATION.--Lat 37°41'05", long 76°43'37", Middlesex County, Hydrologic Unit 02080102, on left bank at downstream side of bridge on State Highway 602, 0.9 mi (1.4 km) upstream from Briery Swamp, 1.8 mi (2.9 km) downstream from Tim Branch Swamp, 2.6 mi (4.2 km) west of Church View, and 2.9 mi (4.7 km) east of Dragonville.

DRAINAGE AREA.--84.9 mi² (219.9 km²).

PERIOD OF RECORD.--August 1943 to current year. Prior to October 1965, published as Dragon Run near Church View.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 34.00 ft (10.363 m) above mean sea level. Prior to July 18, 1966, at site 400 ft (122 m) downstream at same datum.

REMARKS.--Records good above 1.0 ft³/s (0.028 m³/s) and fair below. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--34 years, 81.7 ft³/s (2.314 m³/s), 13.07 in/yr (332 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,990 ft³/s (113 m³/s) June 4, 1963, gage height, 10.00 ft (3.048 m); no flow many days in 1954, 1955, 1957, 1959, and 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in September 1935 reached a stage of about 17 ft (5.2 m), discharge not determined, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 478 ft³/s (13.5 m³/s) Oct. 3, gage height, 6.27 ft (1.911 m), no peak above base of 600 ft³/s (17 m³/s); minimum, 0.22 ft³/s (0.006 m³/s) Aug. 8, gage height, 2.98 ft (0.908 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	157	104	90	133	115	63	37	44	3.0	.62	3.8
2	90	139	108	76	117	104	60	34	34	2.3	.82	2.6
3	442	129	104	64	104	99	60	33	28	1.9	.90	1.9
4	350	121	91	67	123	94	65	33	24	1.5	1.0	1.7
5	230	111	86	69	146	96	94	40	18	1.2	.94	1.7
6	169	99	79	69	146	91	145	42	15	1.1	.78	1.7
7	121	90	90	69	125	91	170	44	12	.94	.54	3.0
8	87	83	127	71	104	90	159	60	10	1.6	.34	4.1
9	111	78	146	71	96	88	125	63	10	17	.70	7.6
10	144	76	159	93	99	80	99	59	12	21	.90	14
11	119	73	159	150	121	75	84	52	10	19	.90	14
12	96	76	142	148	142	72	76	46	9.0	25	.74	17
13	79	83	129	125	159	70	70	40	7.4	42	1.0	19
14	69	87	117	127	162	68	65	36	6.6	37	1.9	18
15	61	88	109	169	135	65	60	30	8.0	40	2.8	16
16	55	91	111	195	117	63	56	24	8.5	37	2.3	12
17	52	93	108	184	96	61	53	20	7.8	31	2.8	9.2
18	56	91	101	164	87	61	49	17	6.8	25	13	7.0
19	58	87	94	133	81	66	47	14	5.7	18	15	5.5
20	69	86	91	115	81	69	44	12	4.9	11	11	5.0
21	148	80	102	108	80	79	43	10	4.1	7.4	9.0	4.9
22	186	77	99	99	79	90	42	8.8	3.4	4.9	11	5.4
23	198	73	96	90	78	111	41	7.8	2.9	2.9	10	5.7
24	171	70	97	91	79	113	42	7.6	2.6	1.9	8.5	5.7
25	144	69	91	102	91	106	43	18	2.8	1.6	9.2	5.7
26	166	69	97	117	99	94	43	46	3.4	1.6	8.5	5.5
27	171	69	106	135	104	83	42	58	3.0	1.1	8.0	5.7
28	159	69	104	164	123	75	40	66	2.8	.90	7.8	5.7
29	152	68	104	190	---	70	40	61	3.8	.70	7.4	5.5
30	150	108	101	192	---	68	39	73	3.8	.70	6.2	5.0
31	154	---	93	157	---	67	---	56	---	.62	4.0	---
TOTAL	4294	2708	3345	3694	3110	2570	2059	1148.2	314.3	360.86	149.58	219.6
MEAN	139	90.3	108	119	111	82.9	68.6	37.0	10.5	11.6	4.83	7.32
MAX	442	157	159	195	162	115	170	73	44	42	15	19
MIN	37	69	79	64	78	61	39	7.6	2.6	.62	.34	1.7
CFSM	1.64	1.06	1.27	1.40	1.31	.98	.81	.44	.12	.14	.06	.09
IN.	1.89	1.19	1.47	1.62	1.36	1.13	.90	.50	.14	.16	.07	.10

CAL YR 1976 TOTAL 30160.00 MEAN 82.4 MAX 975 MIN 1.1 CFSM .97 IN 13.21
WTR YR 1977 TOTAL 23972.54 MEAN 65.7 MAX 442 MIN .34 CFSM .77 IN 10.50

01670000 BEAVERDAM SWAMP NEAR ARK, VA

LOCATION.--Lat 37°28'14", long 76°33'48", Gloucester County, Hydrologic Unit 02080102, on right bank 300 ft (91 m) downstream from bridge on State Highway 606, 1.4 mi (2.3 km) upstream from Beech Swamp, 2.3 mi (3.7 km) north of Ark, and 4.3 mi (6.9 km) northwest of Gloucester.

DRAINAGE AREA.--6.63 mi² (17.17 km²).

PERIOD OF RECORD.--October 1949 to current year.

REVISED RECORDS.--WSP 1502: 1950, 1951-52(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 36.43 ft (11.104 m) above mean sea level.

REMARKS.--Records fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--28 years, 7.04 ft³/s (0.199 m³/s), 14.42 in/yr (366 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 570 ft³/s (16.1 m³/s) Sept. 12, 1960, gage height, 5.88 ft (1.792 m), from rating curve extended above 130 ft³/s (3.7 m³/s); no flow July 30 to Aug. 2, 1953.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 65 ft³/s (1.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 2	1900	101	2.86	3.68	1.122	Mar. 13	2100	*145	4.11	3.67	1.119
Oct. 21	0100	109	3.09	3.62	1.103						

Minimum discharge, 0.19 ft³/s (0.005 m³/s) Aug. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.4	13	6.4	3.9	8.0	12	6.8	5.3	4.1	.77	.42	.88
2	41	7.4	5.3	3.4	8.5	10	6.8	5.0	3.5	.72	.60	.77
3	28	6.0	4.8	3.7	9.0	9.3	6.8	5.3	2.7	.60	.94	.72
4	9.0	6.1	4.1	4.5	11	12	13	11	2.2	.55	1.1	.88
5	6.8	5.7	4.3	4.4	12	19	35	16	1.9	.52	1.2	.66
6	5.7	5.4	4.4	4.5	9.5	14	15	8.6	1.9	.48	.99	.66
7	4.9	5.4	11	5.0	8.0	17	11	7.8	1.9	.44	.92	1.6
8	4.6	5.7	18	5.8	7.6	13	9.0	15	1.6	1.2	.72	1.8
9	9.5	5.8	9.9	4.5	7.8	9.7	8.3	7.6	2.3	4.4	.46	7.3
10	8.5	6.1	7.4	22	8.8	8.6	7.6	5.4	3.3	4.2	.38	8.4
11	5.2	6.6	7.9	19	9.7	8.4	7.2	4.9	2.4	4.8	.27	3.7
12	4.8	7.8	8.4	6.5	9.5	9.0	7.0	4.6	1.9	12	.27	2.0
13	4.9	9.5	7.9	6.1	16	53	6.7	4.3	1.6	5.0	.48	1.5
14	4.9	8.7	5.8	7.3	12	52	6.6	3.8	1.4	2.0	.38	1.2
15	4.6	7.9	6.0	20	8.8	23	6.6	3.6	1.6	1.5	.34	.96
16	4.4	7.3	10	13	7.8	17	6.4	3.3	1.8	.90	.34	.88
17	9.2	7.4	8.0	11	7.0	14	6.2	3.0	1.6	.67	2.3	.99
18	11	6.7	6.4	11	6.6	14	6.2	2.8	1.5	.54	24	.94
19	7.2	6.1	5.4	10	7.3	13	6.1	2.7	1.3	.65	4.2	.94
20	26	6.0	5.8	10	10	18	6.1	2.4	1.3	.38	4.1	.88
21	58	5.8	10	9.5	8.5	17	6.1	2.3	4.5	.38	1.9	.77
22	16	5.5	6.6	9.0	7.0	15	6.0	2.1	3.6	.38	1.3	.77
23	9.2	5.4	6.0	8.5	7.6	29	5.4	2.0	1.8	.36	1.0	.82
24	11	5.3	5.2	9.9	11	15	18	2.6	1.6	.32	8.3	.77
25	10	5.4	4.5	10	19	11	24	21	1.5	.32	38	.77
26	23	5.7	11	11	11	9.0	11	19	1.5	.40	4.2	.77
27	13	6.1	9.7	12	12	8.0	7.6	8.2	1.3	.40	3.6	.66
28	7.0	7.2	6.8	14	22	7.5	6.4	4.4	1.2	.32	2.0	.66
29	6.1	16	6.0	14	---	7.2	6.4	3.3	.99	.31	1.5	.72
30	5.7	12	4.9	9.0	---	7.2	6.2	3.7	.94	.35	1.2	.66
31	15	---	5.2	8.2	---	7.2	---	4.0	---	.29	1.1	---
TOTAL	378.6	215.0	223.1	291.8	283.0	479.1	281.5	195.0	60.73	45.95	122.39	45.61
MEAN	12.2	7.17	7.20	9.41	10.1	15.5	9.38	6.29	2.02	1.48	3.95	1.51
MAX	58	16	18	22	22	53	35	21	4.5	12	38	8.8
MIN	4.4	5.3	4.1	3.4	6.6	7.2	5.4	2.0	.94	.29	.27	.66
CFSM	1.84	1.08	1.09	1.42	1.52	2.34	1.42	.95	.31	.22	.60	.23
IN.	2.12	1.21	1.25	1.64	1.59	2.69	1.58	1.09	.34	.26	.69	.25

CAL YR 1976 TOTAL 2640.61 MEAN 7.21 MAX 44 MIN .19 CFSM 1.09 IN 14.81
WTR YR 1977 TOTAL 2621.58 MEAN 7.18 MAX 58 MIN .27 CFSM 1.08 IN 14.71

01670300 CONTRARY CREEK NEAR MINERAL, VA

LOCATION.--Lat 38°03'53", long 77°52'45", Louisa County, Hydrologic Unit 02080106, on left bank 400 ft (122 m) downstream from bridge on State Highway 522, and 4.0 mi (6.4 km) northeast of Mineral.

DRAINAGE AREA.--5.53 mi² (14.3 km²).

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 275 ft (83.8 m), from topographic map.

REMARKS.--Records good except those for January and February, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 420 ft³/s (11.9 m³/s) Dec. 31, 1975, gage height, 2.88 ft (0.878 m), from rating curve extended above 120 ft³/s (3.4 m³/s); minimum, 0.04 ft³/s (0.001 m³/s) July 31, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.7 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	0930	276	7.82	2.56	0.780	Oct. 20	1600	*294	8.33	2.61	0.796

Minimum discharge, 0.04 ft³/s (0.001 m³/s) July 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.8	7.4	4.6	3.5	3.3	3.2	3.0	2.2	.44	.10	2.9	.08
2	35	5.6	4.4	3.4	3.3	3.8	3.4	2.2	.56	.10	1.2	.06
3	7.2	5.8	3.5	3.3	3.4	3.0	3.8	2.2	.56	.09	.56	1.1
4	3.5	4.6	3.8	3.1	3.7	3.8	12	2.2	.45	.09	.56	.08
5	2.4	4.4	3.2	3.2	3.5	3.2	16	2.4	.45	.10	.30	.56
6	2.1	4.1	4.1	3.3	3.3	3.0	4.4	2.2	.56	.09	.23	2.2
7	1.7	4.1	40	3.3	3.2	3.0	5.6	3.0	.37	.08	.19	2.0
8	1.7	3.8	11	3.7	3.1	2.7	4.8	3.5	.30	.07	.15	.64
9	46	3.4	6.8	3.5	3.2	2.7	4.4	2.4	1.7	.07	.12	6.3
10	4.1	3.5	5.0	3.5	3.5	2.7	3.8	2.0	1.2	.09	.09	2.2
11	4.1	3.5	5.5	3.5	3.7	2.7	3.5	1.7	.76	.10	.04	.48
12	3.9	4.4	6.4	3.4	4.0	2.7	3.5	2.0	.66	1.4	.08	.56
13	2.7	4.6	5.0	3.6	4.5	6.8	3.5	1.7	.64	2.2	.10	.37
14	2.2	4.1	4.4	3.5	4.2	4.6	3.2	1.5	.48	.76	.19	.37
15	2.0	4.1	4.1	4.0	4.0	3.4	3.2	1.3	1.3	.37	.15	.37
16	1.7	3.5	4.4	3.5	3.7	3.5	3.8	1.3	1.2	.14	.12	.56
17	4.4	3.2	4.1	3.2	4.0	3.0	3.0	1.3	1.0	.12	.12	1.7
18	4.4	3.2	3.4	2.4	3.4	3.4	3.0	1.2	1.0	.76	.12	1.0
19	3.0	3.9	3.5	2.6	3.5	3.5	2.7	1.3	.66	.45	.10	.56
20	67	2.7	4.1	2.7	3.5	4.6	2.7	1.5	.56	.23	.09	.45
21	16	2.7	5.4	6.8	3.2	3.8	2.7	1.3	.37	.37	.09	.45
22	6.4	2.7	4.1	2.8	3.5	24	2.7	1.0	.30	.56	.09	.37
23	4.6	2.6	3.5	2.4	3.8	9.6	2.6	1.0	.30	.19	.08	.45
24	4.1	2.9	3.2	3.4	4.8	6.4	2.7	1.0	.30	.10	.30	.45
25	6.4	2.7	3.5	3.1	9.6	6.0	2.4	2.4	.37	.19	.37	.45
26	18	2.7	5.6	3.2	3.4	4.6	2.4	2.2	.56	.30	.19	.45
27	8.4	2.7	4.6	3.3	3.4	4.4	2.4	1.0	.30	.10	.15	.56
28	5.3	3.0	4.4	3.4	3.5	4.1	2.2	.66	.45	.10	.15	.56
29	4.4	15	4.1	3.7	---	3.8	3.0	.66	.37	.09	.10	.45
30	4.1	7.6	3.4	3.5	---	3.4	2.4	.56	.15	.07	.09	.37
31	14	---	3.2	3.4	---	3.6	---	.76	---	.06	.09	---
TOTAL	325.4	126.6	178.9	102.0	103.4	142.2	122.0	51.52	18.88	9.59	4.17	27.40
MEAN	10.5	4.22	5.77	3.29	3.69	4.59	4.07	1.66	.63	.31	.30	.91
MAX	67	15	40	4.0	9.6	24	16	3.5	1.7	2.2	2.9	6.3
MIN	1.7	2.2	3.2	2.4	3.0	2.7	2.2	.56	.15	.06	.08	.06
CFSM	1.90	.76	1.04	.60	.67	.83	.74	.30	.11	.06	.05	.17
IN.	2.19	.85	1.20	.69	.70	.96	.82	.34	.13	.06	.06	.18

CAL YR 1976 TOTAL 2035.45 MEAN 5.56 MAX 67 MIN .37 CFSM 1.01 IN 13.69
WTR YR 1977 TOTAL 1217.45 MEAN 3.34 MAX 67 MIN .06 CFSM .60 IN 8.19

01671000 NORTH ANNA RIVER NEAR DOSWELL, VA

LOCATION.--Lat 37°53'15", long 77°29'15", Caroline County, Hydrologic Unit 02080106, on left bank 1.5 mi (2.4 km) upstream from bridge on U.S. Highway 1, 2.5 mi (4.0 km) northwest of Doswell, and 4.4 mi (7.1 km) upstream from Bull Run.

DRAINAGE AREA.--441 mi² (1,142 km²).

PERIOD OF RECORD.--March 1926 to current year. Monthly discharge only for some periods, published in WSP 1302. Published as "near Hewlett," 1926-28.

REVISED RECORDS.--WSP 1171: 1943. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 55.66 ft (16.965 m) above mean sea level. Mar. 23, 1926, to Aug. 11, 1928, nonrecording gage at site 10.2 mi (16.4 km) upstream at different datum. Mar. 17, 1929, to Nov. 7, 1930, nonrecording gage at present site and datum.

REMARKS.--Records good. Flow regulated since January 1972 by Lake Anna, capacity, 373,000 acre-ft (460 hm³), 20.5 mi (33.0 km) upstream. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--51 years, 384 ft³/s (10.87 m³/s), 11.82 in/yr (300 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,800 ft³/s (702 m³/s) Aug. 21, 1969, gage height, 32.60 ft (9.936 m); maximum gage height, 33.7 ft (10.27 m) Aug. 12, 1928, from floodmarks, present site and datum; minimum discharge, 1.0 ft³/s (0.028 m³/s) Sept. 30, Oct. 1, 2, 1932.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,160 ft³/s (118 m³/s) Oct. 21, gage height, 12.30 ft (3.749 m); minimum, 36 ft³/s (1.02 m³/s) Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	125	945	792	140	190	173	316	142	104	82	99	94
2	159	862	322	163	308	169	179	138	108	80	99	96
3	270	445	205	167	390	161	173	130	103	84	79	99
4	225	167	171	142	396	165	303	125	87	82	90	103
5	175	149	165	146	396	160	638	126	97	84	89	97
6	104	142	179	146	350	169	860	119	97	90	85	92
7	97	138	1030	159	381	157	792	128	96	90	86	108
8	157	136	2040	328	370	161	656	142	92	96	82	103
9	1480	146	1780	336	370	155	301	125	92	105	90	115
10	3190	384	462	364	384	153	165	117	96	119	94	96
11	3050	319	546	396	404	153	163	108	90	92	92	87
12	516	392	436	269	415	153	159	353	87	99	89	82
13	167	392	427	263	423	163	157	161	101	112	87	86
14	113	374	209	263	419	171	155	101	97	87	92	89
15	110	216	167	397	411	163	174	96	99	78	85	90
16	108	260	374	427	388	159	183	96	99	84	87	90
17	119	268	411	459	177	177	169	92	99	82	96	92
18	301	268	400	1170	136	331	140	88	97	85	96	89
19	147	232	190	1280	140	175	126	89	94	86	89	87
20	684	126	165	1130	144	209	125	87	92	85	87	85
21	3820	121	362	1180	198	367	123	85	90	89	84	72
22	2770	119	408	1100	200	741	121	94	89	92	80	50
23	620	121	381	959	161	1240	138	103	90	87	79	49
24	181	121	183	297	161	521	146	101	92	84	92	48
25	404	121	167	92	200	411	198	126	90	80	106	46
26	2930	123	323	106	203	239	159	125	90	79	101	45
27	2740	203	427	126	186	179	149	108	89	78	99	44
28	400	360	261	175	186	250	132	101	90	82	96	41
29	198	696	181	205	---	396	144	96	87	94	90	40
30	251	945	177	205	---	477	142	94	84	92	90	40
31	770	---	159	229	---	895	---	98	---	99	104	---
TOTAL	26381	9211	13894	12659	8147	8990	7589	3696	2814	2739	2808	2365
MEAN	851	307	448	408	291	290	253	119	93.8	88.4	90.6	78.8
MAX	3820	945	2040	1280	423	1250	860	353	108	119	106	115
MIN	97	119	159	92	136	153	121	85	84	78	79	40
CFSM	1.93	.70	1.02	.93	.66	.66	.57	.27	.21	.20	.21	.18
IN.	2.23	.78	1.17	1.07	.69	.76	.64	.31	.24	.23	.24	.20

CAL YR 1976 TOTAL 167486 MEAN 458 MAX 6020 MIN 40 CFSM 1.04 IN 14.13
WTR YR 1977 TOTAL 101293 MEAN 278 MAX 3820 MIN 40 CFSM .63 IN 8.56

01671100 LITTLE RIVER NEAR DOSWELL, VA

LOCATION.--Lat 37°52'21", long 77°30'48", Hanover County, Hydrologic Unit 02080106, on left bank at downstream side of bridge on State Highway 685, 0.8 mi (1.3 km) southwest of Verdon, 2.9 mi (4.7 km) west of Doswell, and 9.6 mi (15.4 km) upstream from mouth.

DRAINAGE AREA.--107 mi² (277 km²).

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 132.30 ft (40.325 m) above mean sea level (levels by La Prade Bros., Engineers).

REMARKS.--Records good. Frequent quarry dewatering by the General Crushed Stone Co. above gage adds about 0.5 ft³/s (0.014 m³/s) at times. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--16 years, 98.5 ft³/s (2.790 m³/s), 12.50 in/yr (318 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft³/s (340 m³/s) Aug. 21, 1969, gage height, 11.09 ft (3.380 m), from rating curve extended above 7,600 ft³/s (220 m³/s) on basis of contracted-opening measurement of peak flow; minimum, 0.10 ft³/s (0.003 m³/s) Sept. 25, 26, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 650 ft³/s (18 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 22	0500	*1090	30.9	5.05	1.539	Oct. 27	1300	850	24.1	4.72	1.439

Minimum discharge, 0.27 ft³/s (0.008 m³/s) Sept. 7, gage height, 1.39 ft (0.424 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69	197	234	72	60	88	62	33	19	8.1	1.6	3.9
2	78	172	140	88	57	75	61	32	19	7.7	2.0	2.0
3	145	124	100	72	63	70	64	31	18	6.7	1.6	1.4
4	160	99	82	68	90	67	89	31	16	6.1	1.3	1.3
5	114	83	72	70	113	68	142	32	15	6.1	1.2	1.3
6	66	71	69	72	90	70	175	31	15	5.8	1.1	.94
7	46	65	128	74	82	70	150	40	14	4.9	1.1	.42
8	53	61	374	70	65	67	108	76	13	4.6	.98	.66
9	430	56	382	75	62	62	87	80	13	8.9	1.2	3.7
10	344	54	214	80	74	59	76	56	13	24	.94	4.9
11	278	52	160	82	90	55	69	41	13	13	.63	4.4
12	160	56	140	82	107	55	64	33	11	8.1	.98	2.1
13	85	62	134	67	117	63	61	30	11	7.0	.87	1.8
14	57	65	121	65	117	72	57	28	11	6.7	.90	1.7
15	42	66	111	117	104	68	54	26	12	5.2	1.8	1.6
16	34	64	107	155	95	62	52	24	13	4.3	2.2	1.5
17	36	59	105	110	79	54	48	23	13	3.5	1.7	1.6
18	45	57	97	93	75	54	46	21	13	3.3	1.8	1.9
19	48	56	90	79	70	55	45	21	13	2.7	1.6	1.9
20	130	53	88	70	72	72	44	21	12	2.5	1.3	1.7
21	726	52	99	67	72	92	48	19	12	2.5	1.3	1.5
22	910	48	99	65	68	143	39	19	11	2.5	1.1	1.1
23	300	46	97	63	67	306	36	17	10	2.2	.69	.54
24	155	46	83	62	72	237	34	16	10	2.1	.94	.39
25	112	46	82	68	107	135	46	32	9.8	2.1	1.6	.30
26	520	47	101	74	105	100	59	53	9.8	2.2	1.2	.60
27	820	48	121	75	95	85	48	39	8.1	2.0	.75	1.2
28	386	51	117	75	97	74	39	32	8.5	1.7	1.2	1.8
29	165	130	109	82	---	71	36	28	9.4	1.4	.98	2.3
30	108	258	97	75	---	68	34	24	9.4	1.4	.74	3.3
31	158	---	88	65	---	66	---	21	---	1.3	4.7	---
TOTAL	6780	2344	4041	2432	2370	2683	1973	1010	375.0	160.6	42.00	53.75
MEAN	219	78.1	130	78.5	84.6	86.5	65.8	32.6	12.5	5.18	1.35	1.79
MAX	910	258	382	155	117	306	175	80	19	24	4.7	4.9
MIN	34	46	69	62	57	54	34	16	8.1	1.3	.63	.30
CFSM	2.05	.73	1.22	.73	.79	.81	.62	.31	.12	.05	.01	.02
IN.	2.36	.81	1.40	.85	.82	.93	.69	.35	.13	.06	.01	.02

CAL YR 1976 TOTAL 43135.29 MEAN 118 MAX 2000 MIN 4.2 CFSM 1.10 IN 15.00
WTR YR 1977 TOTAL 24264.35 MEAN 66.5 MAX 910 MIN .30 CFSM .62 IN 8.44

01671500 BUNCH CREEK NEAR BOSWELLS TAVERN, VA

LOCATION.--Lat 38°01'54", long 78°11'30", Louisa County, Hydrologic Unit 02080106, on right bank at upstream side of bridge on U.S. Highway 15, 2.7 mi (4.3 km) south of Boswells Tavern, 4.8 mi (7.7 km) north of Zion Crossroads, 5.0 mi (8.0 km) upstream from mouth, and 10 mi (16 km) west of Louisa.

DRAINAGE AREA.--4.37 mi² (11.32 km²).

PERIOD OF RECORD.--October 1948 to current year. Prior to October 1967, published as Hudson Creek near Boswells Tavern.

REVISED RECORDS.--WSP 2103: Drainage area. WDR VA-73: 1972.

GAGE.--Water-stage recorder. Datum of gage is 377.14 ft (114.952 m) above mean sea level.

REMARKS.--Records good except those for January and February, which are poor. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--29 years, 4.52 ft³/s (0.128 m³/s), 14.05 in/yr (357 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,750 ft³/s (77.9 m³/s) Aug. 20, 1969, gage height, 10.64 ft (3.243 m), from rating curve extended above 340 ft³/s (9.6 m³/s) on basis of contracted-opening measurement of peak flow; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (4.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 2	1830	173	4.90	3.11	0.948	Oct. 20	1500	*387	11.0	4.44	1.353
Oct. 9	1000	371	10.5	4.34	1.323	Oct. 26	0430	211	5.98	3.37	1.027

No flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.1	8.0	5.9	3.2	2.3	2.6	2.1	2.1	.65	.09	.00	.00
2	52	4.8	5.0	3.0	2.3	2.5	2.2	1.7	.58	.09	.00	.00
3	16	4.2	4.4	2.7	2.3	2.4	2.6	1.2	.52	.08	.00	.00
4	4.0	4.0	4.6	2.5	2.4	2.6	15	1.4	.46	.09	.00	.00
5	2.9	3.5	4.0	2.5	2.3	3.1	27	1.4	.35	.09	.00	.00
6	1.2	3.3	4.0	2.6	2.3	2.9	11	1.2	.40	.08	.00	.00
7	.92	3.1	50	2.5	2.2	2.5	5.3	1.0	.35	.07	.00	.00
8	6.8	2.9	14	2.4	2.2	2.2	4.4	.92	.35	.05	.00	.00
9	148	2.6	7.1	2.3	2.2	2.1	4.4	.72	.46	.05	.00	.00
10	15	2.8	5.6	2.5	2.3	2.0	3.3	.65	.40	.06	.00	.00
11	7.1	2.8	5.3	2.4	2.4	2.0	2.9	.65	.35	.06	.00	.00
12	5.6	4.0	8.0	2.3	2.5	2.0	2.8	.65	.35	.06	.00	.00
13	4.4	5.0	5.9	2.3	2.5	23	2.5	.65	.25	.07	.00	.00
14	3.7	4.0	4.4	2.2	2.6	6.8	2.4	.58	.58	.06	.00	.00
15	2.6	3.5	4.4	2.3	2.8	3.7	2.2	.58	1.0	.06	.00	.00
16	2.5	3.1	4.8	2.4	2.8	2.9	2.1	.52	.92	.00	.00	.00
17	3.3	2.9	4.2	1.9	2.7	2.6	2.0	.46	.65	.00	.00	.00
18	4.4	2.9	3.7	1.7	2.5	2.6	1.9	.46	.52	.00	.00	.00
19	2.9	2.8	3.3	1.5	2.5	2.8	1.7	.46	.40	.00	.00	.00
20	93	2.6	3.0	1.4	2.5	3.5	1.6	.46	.30	.00	.00	.00
21	26	2.6	3.6	1.4	2.4	3.1	1.6	.46	.25	.00	.00	.00
22	7.1	2.5	3.7	1.3	2.4	18	1.6	.40	.20	.00	.00	.00
23	4.6	2.4	3.7	1.3	2.5	6.8	1.6	.35	.25	.00	.00	.00
24	4.6	2.5	3.7	1.4	5.3	8.5	2.0	.35	.25	.00	.00	.00
25	12	2.4	3.7	1.5	8.3	3.1	2.0	.78	.25	.00	.00	.00
26	81	2.5	3.5	1.5	4.0	2.9	1.9	1.0	.20	.00	.00	.00
27	11	3.1	3.5	1.6	3.3	2.8	1.7	.78	.12	.00	.00	.00
28	4.6	3.1	3.3	1.8	3.1	2.5	1.6	.58	.14	.00	.00	.00
29	4.6	29	3.3	1.9	---	2.5	1.9	.46	.14	.00	.00	.00
30	4.0	12	3.7	2.1	---	2.5	1.7	.58	.09	.00	.00	.00
31	20	---	3.3	2.2	---	2.2	---	.65	---	.00	.00	---
TOTAL	563.02	134.9	190.6	64.6	79.9	131.5	117.0	24.15	11.73	1.06	.00	.00
MEAN	18.2	4.50	6.15	2.08	2.85	4.24	3.90	.78	.39	.034	.000	.000
MAX	148	29	50	3.2	8.3	23	27	2.1	1.0	.09	.00	.00
MIN	.92	2.4	3.0	1.3	2.2	2.0	1.6	.35	.09	.00	.00	.00
CFSM	4.17	1.03	1.41	.48	.65	.97	.89	.18	.09	.008	.000	.000
IN.	4.79	1.15	1.62	.55	.68	1.12	1.00	.21	.10	.01	.00	.00

CAL YR 1976 TOTAL 2120.65 MEAN 5.79 MAX 148 MIN .09 CFSM 1.33 IN 18.05
WTR YR 1977 TOTAL 1318.44 MEAN 3.61 MAX 148 MIN .00 CFSM .83 IN 11.22

01672500 SOUTH ANNA RIVER NEAR ASHLAND, VA

LOCATION.--Lat 37°47'48", long 77°32'57", Hanover County, Hydrologic Unit 02080106, on right bank at downstream side of bridge on State Highway 54, 4.5 mi (7.2 km) northwest of Ashland, and 7.6 mi (12.2 km) upstream from Newfound River.

DRAINAGE AREA.--394 mi² (1,020 km²).

PERIOD OF RECORD.--October 1930 to current year.

REVISED RECORDS.--WSP 801: 1935(M). WSP 1502: 1935, 1939. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 83.74 ft (25.524 m) above mean sea level.

REMARKS.--Records good except those for January and February, which are fair. Since 1966, diversion 150 ft (46 m) above station for town of Ashland water supply has averaged less than 0.6 ft³/s (0.017 m³/s). Capacity of the diversion pickup is about 1.5 ft³/s (0.042 m³/s). Small diurnal fluctuation at low flow in some years caused by gristmills above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--47 years, 361 ft³/s (10.22 m³/s), 12.44 in/yr (316 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,100 ft³/s (484 m³/s) Aug. 23, 1969, gage height, 24.99 ft (7.617 m); minimum, 0.10 ft³/s (0.003 m³/s) Sept. 12, 1966, caused by diversion above station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 15, 1928, reached a stage of about 24 ft (7.3 m), discharge, about 14,500 ft³/s (411 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,200 ft³/s (62 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	0800	2720	77.0	9.66	2.944	Oct. 27	0830	2310	66.0	8.79	2.679
Oct. 20	2230	*3060	86.7	10.39	3.167						

Minimum discharge, 2.8 ft³/s (0.79 m³/s) Aug. 1, gage height, 0.98 ft (0.299 m), caused by diversion above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	344	809	856	224	260	310	268	147	80	41	11	13
2	482	692	480	176	248	275	252	139	77	37	12	19
3	931	464	384	214	270	241	260	133	73	32	13	26
4	1150	380	303	224	350	228	355	145	68	29	25	19
5	486	336	266	212	400	235	655	166	65	27	59	14
6	247	298	244	207	370	254	1040	151	64	26	38	9.6
7	175	265	514	216	332	269	797	144	61	23	28	7.7
8	163	240	1560	198	275	249	513	220	58	28	30	9.6
9	2050	225	1790	201	262	227	404	206	57	25	29	624
10	1720	215	788	246	300	218	343	175	56	22	29	295
11	1800	200	551	261	360	206	306	136	54	23	24	130
12	1970	225	492	270	400	207	291	118	53	21	19	54
13	657	240	493	304	412	311	276	110	54	18	15	47
14	359	272	463	360	375	335	260	104	54	21	13	45
15	245	247	371	600	310	621	239	100	57	37	12	45
16	191	249	343	665	260	409	221	96	56	39	15	49
17	199	239	343	560	234	321	211	91	56	33	19	53
18	242	218	328	465	200	285	202	83	58	27	47	54
19	264	205	292	360	214	272	196	79	76	24	45	52
20	942	198	278	312	218	427	187	77	70	21	26	45
21	2720	191	352	290	212	437	179	75	60	21	20	13
22	2320	186	354	272	206	612	173	71	50	22	18	12
23	2200	177	308	258	201	1220	169	69	45	19	17	12
24	827	170	265	255	224	956	178	68	44	18	19	13
25	486	166	265	290	329	554	213	78	42	24	28	13
26	1740	166	342	300	381	432	190	133	41	22	21	12
27	2220	168	369	305	356	384	171	142	39	19	19	11
28	1910	177	347	330	351	331	157	117	40	17	17	10
29	695	523	305	330	---	314	153	100	46	16	14	9.6
30	478	1010	276	318	---	306	150	87	48	15	12	8.2
31	656	---	269	295	---	292	---	81	---	13	17	---
TOTAL	30905	9198	14549	9504	8323	11710	9009	3661	1700	760	711	1724.7
MEAN	997	307	469	307	297	378	300	118	56.7	24.5	22.9	57.5
MAX	2720	1010	1790	665	412	1220	1040	220	80	41	59	624
MIN	163	166	244	176	200	206	150	68	39	13	11	7.7
CFSM	2.53	.78	1.19	.78	.75	.96	.76	.30	.14	.06	.06	.15
IN.	2.92	.87	1.37	.90	.79	1.11	.85	.35	.16	.07	.07	.16

CAL YR 1976 TOTAL 156931.0 MEAN 429 MAX 3530 MIN 23 CFSM 1.09 IN 14.82
WTR YR 1977 TOTAL 101744.7 MEAN 279 MAX 2720 MIN 7.7 CFSM .71 IN 9.61

01673000 PAMUNKEY RIVER NEAR HANOVER, VA
(National stream-quality accounting network station)

LOCATION.--Lat 37°46'03", long 77°19'57", Hanover County, Hydrologic Unit 02080106, on right bank 100 ft (30 m) downstream from bridge, 0.3 mi (0.5 km) upstream from Mechumps Creek, 2.0 mi (3.2 km) east of Hanover, and 7.0 mi (11.3 km) upstream from Millpond Creek.

DRAINAGE AREA.--1,081 mi² (2,800 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1941 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 1302: 1944(M). WSP 1382: 1949. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 14.72 ft (4.487 m) above mean sea level. Prior to Oct. 15, 1976, nonrecording gage at same site and datum, and since June 11, 1957, auxiliary nonrecording gage 1.2 mi (1.9 km) downstream from base gage.

REMARKS.--Records good. Some regulation since January 1972 by Lake Anna, capacity, 373,000 acre-ft (460 hm³) and occasional diurnal fluctuation at low flow caused by mill above station.

AVERAGE DISCHARGE.--36 years, 982 ft³/s (27.81 m³/s), 12.34 in/yr (313 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,300 ft³/s (1,140 m³/s) Aug. 23, 1969, gage height, 31.12 ft (9.485 m), from floodmarks, from rating curve extended above 22,000 ft³/s (620 m³/s); minimum, 12 ft³/s (0.34 m³/s) Sept. 12, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1928 reached a stage of 32.6 ft (9.94 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,340 ft³/s (208 m³/s) Oct. 23, gage height, 19.62 ft (5.980 m); minimum, 83 ft³/s (2.35 m³/s) Sept. 30, gage height, 2.60 ft (0.792 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	345	2360	2570	543	639	729	1030	387	221	134	112	109
2	830	2240	1790	477	581	642	726	377	217	130	118	109
3	1410	1740	1010	520	790	585	606	382	212	120	114	109
4	1800	1070	785	600	912	550	668	344	202	118	111	110
5	1400	807	685	557	1030	552	1400	374	182	119	107	112
6	806	717	629	455	1090	563	2210	392	182	129	130	114
7	540	656	859	564	953	567	2210	355	185	136	127	109
8	410	603	3110	543	907	589	1730	466	177	126	117	109
9	1900	566	4260	732	944	546	1220	562	175	122	113	399
10	4340	610	4280	837	617	513	830	487	176	142	112	1490
11	5150	732	2390	925	827	484	643	396	173	149	114	311
12	5730	778	1430	970	904	476	650	330	161	142	114	156
13	3870	889	1320	827	985	529	620	594	142	138	112	127
14	1340	899	1180	827	1040	813	542	341	149	214	109	116
15	830	844	894	1190	1000	814	560	268	164	148	108	113
16	496	703	849	1620	948	832	560	253	166	125	119	115
17	455	715	1030	1330	809	676	541	247	146	127	118	137
18	642	717	1010	1200	540	658	507	234	168	129	117	134
19	734	670	897	1050	512	726	452	222	162	126	110	124
20	846	576	685	920	540	646	420	215	170	121	112	114
21	3860	472	792	805	537	1070	409	212	160	118	114	119
22	5570	454	1030	645	573	1040	399	202	143	114	114	106
23	7190	433	1010	605	560	2810	396	200	153	119	110	92
24	5660	419	854	579	518	2820	398	202	144	118	107	88
25	2400	410	615	605	696	1650	472	210	139	114	114	88
26	2640	410	722	649	788	1160	542	392	132	113	118	87
27	4780	406	1120	710	787	850	477	433	134	113	119	86
28	6200	590	1090	648	762	754	431	345	148	110	117	87
29	4810	908	834	774	---	841	389	281	141	107	114	87
30	1850	2340	740	730	---	902	388	245	134	110	112	86
31	1480	---	680	710	---	1040	---	226	---	111	105	---
TOTAL	80308	25864	41150	24463	21890	27575	22534	10165	5022	3966	3542	5138
MEAN	2591	862	1327	789	782	890	751	328	167	128	114	171
MAX	7190	2360	4280	1620	1090	2820	2210	594	221	214	130	1490
MIN	345	406	615	477	512	476	388	200	132	107	105	86
CFSM	2.40	.80	1.23	.73	.72	.82	.70	.30	.15	.12	.11	.16
IN.	2.76	.89	1.42	.84	.75	.95	.78	.35	.17	.14	.12	.18

CAL YR 1976 TOTAL 439830 MEAN 1202 MAX 9060 MIN 109 CFSM 1.11 IN 15.14
WTR YR 1977 TOTAL 271617 MEAN 744 MAX 7190 MIN 86 CFSM .69 IN 9.35

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946, 1952, 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1968 to January 1976.
WATER TEMPERATURES: October 1945 to September 1946, April 1968 to January 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	DIS-SOLVED OXYGEN (MG/L)	FECAL COLI-FORM, 0.7 UM-MF (COL./100 ML)	FECAL STREP-TOCOCCI KF AGAR (COL. PER 100 ML)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)
OCT 25...	1100	2360	63	7.7	13.5	--	--	--	7100	--	--	--
NOV 04...	1315	1020	70	7.7	10.0	--	--	28	66	--	--	--
JAN 21...	1400	944	45	6.9	1.0	7	--	63	28	23	4	5.4
FEB 16...	1130	1050	60	7.4	3.0	--	--	80	310	--	--	--
MAR 15...	0915	707	72	6.0	12.0	15	--	430	490	28	10	6.6
APR 11...	1230	645	55	7.2	14.0	--	10.8	32	63	--	--	--
MAY 19...	1200	221	61	7.6	23.0	--	--	36	7600	--	--	--
JUN 16...	1200	171	87	7.4	22.5	2	--	120	26	25	0	5.7
JUL 21...	0930	118	90	7.2	28.5	--	6.3	41	54	--	--	--
AUG 11...	0930	114	115	7.2	24.0	--	6.1	52	16	--	--	--
SEP 07...	1330	148	104	7.0	21.5	4	7.6	48	21	26	0	5.4

DATE	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)
OCT 25...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 04...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 21...	2.1	4.9	2.2	23	0	.1	7.6	5.9	.1	11	60	51
FEB 16...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 15...	2.8	5.1	2.0	21	0	3.4	9.6	5.2	.1	10	66	60
APR 11...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 19...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 16...	2.6	4.6	2.2	36	0	2.2	6.7	4.1	.1	8.1	71	53
JUL 21...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 11...	--	--	--	--	--	--	--	--	--	--	--	--
SEP 07...	2.9	6.0	3.0	29	0	4.6	8.0	5.5	.1	4.3	56	49

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (NO3) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)	SUS-PENDED ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	SUS-PENDED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)
OCT												
25...	.15	.57	.72	3.2	.08	--	--	--	--	--	--	--
NOV												
04...	.15	.31	.46	2.0	.04	--	--	--	--	--	--	--
JAN												
21...	.38	.21	.59	2.6	.03	1	0	2	0	0	0	<10
FEB												
14...	.18	.35	.53	2.3	.16	--	--	--	--	--	--	--
MAR												
15...	.13	.53	.66	2.9	.05	0	0	0	1	0	1	20
APR												
11...	.16	.31	.47	2.1	.05	--	--	--	--	--	--	--
MAY												
19...	.15	.33	.48	2.1	.03	--	--	--	--	--	--	--
JUN												
16...	.14	.27	.41	1.8	.03	6	1	5	0	0	0	<10
JUL												
21...	.17	.36	.53	2.3	.06	--	--	--	--	--	--	--
AUG												
11...	.23	.36	.59	2.6	.06	--	--	--	--	--	--	--
SEP												
07...	.10	--	--	--	.13	0	0	0	0	0	0	<10

DATE	SUS-PENDED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	SUS-PENDED COBALT (CO) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	SUS-PENDED COPPER (CU) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	SUS-PENDED LEAD (PB) (UG/L)
OCT												
25...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
04...	--	--	--	--	--	--	--	--	--	--	--	--
JAN												
21...	<8	2	1	1	0	4	2	2	540	40	8	6
FEB												
14...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
15...	20	0	0	0	0	6	6	0	1100	200	0	0
APR												
11...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
19...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
16...	<10	0	0	0	0	4	2	2	600	90	8	6
JUL												
21...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
11...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
07...	<10	0	0	0	0	6	4	2	510	160	0	0

< Actual value is known to be less than the value shown.

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	SUS-PENDED MAN-GANESE (MN) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	SUS-PENDED MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	SUS-PENDED SELE-NIUM (SE) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	SUS-PENDED ZINC (ZN) (UG/L)
OCT												
25...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
08...	--	--	--	--	--	--	--	--	--	--	--	--
JAN												
21...	2	60	31	30	.1	.0	.1	0	0	0	20	10
FEB												
16...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
15...	11	70	40	30	.0	.0	.0	0	0	0	40	30
APR												
11...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
19...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
16...	4	70	60	10	.0	.0	.0	0	0	0	20	20
JUL												
21...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
11...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
07...	0	170	60	110	.0	.0	.0	0	0	0	10	10

DATE	DIS-SOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MA-TERIAL (UG/KG)	TOTAL CHLOR-DANE (UG/L)	CHLOR-DANE IN BOTTOM MA-TERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MA-TERIAL (UG/KG)	TOTAL DDE (UG/L)	DDE IN BOTTOM MA-TERIAL (UG/KG)
OCT										
25...	--	--	--	--	--	--	--	--	--	--
NOV										
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	ND	ND	ND	ND	ND	ND	ND	ND
JAN										
21...	10	9.6	--	--	--	--	--	--	--	--
FEB										
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	ND	--	ND	--	ND	--	ND	--
MAR										
15...	10	6.0	--	--	--	--	--	--	--	--
APR										
11...	--	--	--	--	--	--	--	--	--	--
MAY										
11...	--	--	ND	ND	ND	ND	ND	ND	ND	ND
JUN										
16...	0	6.1	--	--	--	--	--	--	--	--
JUL										
21...	--	--	--	--	--	--	--	--	--	--
AUG										
11...	--	--	ND	--	ND	--	ND	--	ND	--
SEP										
07...	0	6.9	--	--	--	--	--	--	--	--

ND Not detected.

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL DDT (UG/L)	DDT IN BOTTOM MA-TERIAL (UG/KG)	TOTAL DI-AZINON (UG/L)	DI-AZINON IN BOTTOM MA-TERIAL (UG/KG)	TOTAL DI-ELDRIN (UG/L)	DI-ELDRIN IN BOTTOM MA-TERIAL (UG/KG)	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MA-TERIAL (UG/KG)	TOTAL ETHION (UG/L)	ETHION IN BOTTOM MA-TERIAL (UG/KG)
OCT										
25...	--	--	--	--	--	--	--	--	--	--
NOV										
04...	--	--	--	--	--	--	--	--	--	--
04...	ND	ND	ND	--	ND	ND	ND	ND	ND	--
JAN										
21...	--	--	--	--	--	--	--	--	--	--
FEB										
16...	--	--	--	--	--	--	--	--	--	--
16...	ND	--	ND	--	ND	--	ND	--	ND	--
MAR										
15...	--	--	--	--	--	--	--	--	--	--
APR										
11...	--	--	--	--	--	--	--	--	--	--
MAY										
19...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUN										
16...	--	--	--	--	--	--	--	--	--	--
JUL										
21...	--	--	--	--	--	--	--	--	--	--
AUG										
11...	ND	--	ND	--	ND	--	ND	--	ND	--
SEP										
07...	--	--	--	--	--	--	--	--	--	--

DATE	TOTAL HEPTA-CHLOR (UG/L)	HEPTA-CHLOR IN BOTTOM MA-TERIAL (UG/KG)	TOTAL HEPTA-CHLOR EPOXIDE (UG/L)	HEPTA-CHLOR EPOXIDE IN BOT-TOM MA-TERIAL (UG/KG)	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MA-TERIAL (UG/KG)	TOTAL MALA-THION (UG/L)	MALA-THION IN BOTTOM MA-TERIAL (UG/KG)	TOTAL METH-OXY-CHLOR (UG/L)	METHOX-YCHLOR IN BOT-TOM MA-TERIAL (UG/KG)
OCT										
25...	--	--	--	--	--	--	--	--	--	--
NOV										
04...	--	--	--	--	--	--	--	--	--	--
04...	ND	ND	ND	ND	ND	ND	ND	--	ND	ND
JAN										
21...	--	--	--	--	--	--	--	--	--	--
FEB										
16...	--	--	--	--	--	--	--	--	--	--
16...	ND	--	ND	--	ND	--	ND	--	ND	--
MAR										
15...	--	--	--	--	--	--	--	--	--	--
APR										
11...	--	--	--	--	--	--	--	--	--	--
MAY										
19...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUN										
16...	--	--	--	--	--	--	--	--	--	--
JUL										
21...	--	--	--	--	--	--	--	--	--	--
AUG										
11...	ND	--	ND	--	ND	--	ND	--	ND	--
SEP										
07...	--	--	--	--	--	--	--	--	--	--

ND Not detected.

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL METHYL PARA-THION (UG/L)	METHYL PARA-THION IN BOT-TOM MA-TERIAL (UG/KG)	TOTAL METHYL TRI-THION (UG/L)	METHYL TRI-THION IN BOT-TOM MA-TERIAL (UG/KG)	TOTAL PARA-THION (UG/L)	PARA-THION IN BOTTOM MA-TERIAL (UG/KG)	TOTAL TOX-APHENE (UG/L)	TOX-APHENE IN BOTTOM MA-TERIAL (UG/KG)	TOTAL TRI-THION (UG/L)	TRI-THION IN BOTTOM MA-TERIAL (UG/KG)
OCT 25...	--	--	--	--	--	--	--	--	--	--
NOV 04...	--	--	--	--	--	--	--	--	--	--
04...	ND	--	ND	--	ND	--	ND	ND	ND	--
JAN 21...	--	--	--	--	--	--	--	--	--	--
FEB 14...	--	--	--	--	--	--	--	--	--	--
14...	ND	--	ND	--	ND	--	ND	--	ND	--
MAR 15...	--	--	--	--	--	--	--	--	--	--
APR 11...	--	--	--	--	--	--	--	--	--	--
MAY 19...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUN 15...	--	--	--	--	--	--	--	--	--	--
JUL 21...	--	--	--	--	--	--	--	--	--	--
AUG 11...	ND	--	ND	--	ND	--	ND	--	ND	--
SEP 07...	--	--	--	--	--	--	--	--	--	--

DATE	TOTAL 2,4-D (UG/L)	2,4-D IN BOTTOM MA-TERIAL (UG/KG)	TOTAL 2,4,5-T (UG/L)	2,4,5-T IN BOTTOM MA-TERIAL (UG/KG)	TOTAL SILVEX (UG/L)	SILVEX IN BOTTOM MA-TERIAL (UG/KG)	TOTAL PHYTO-PLANK-TON (CELLS PER ML)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
OCT 25...	--	--	--	--	--	--	6400	41	455	90
NOV 04...	--	--	--	--	--	--	1000	31	85	52
04...	ND	ND	ND	ND	ND	ND	--	--	--	--
JAN 21...	--	--	--	--	--	--	1500	79	218	46
FEB 14...	--	--	--	--	--	--	900	18	51	89
14...	ND	--	ND	--	ND	--	--	--	--	--
MAR 15...	--	--	--	--	--	--	--	27	52	91
APR 11...	--	--	--	--	--	--	--	55	103	56
MAY 19...	ND	ND	ND	ND	ND	ND	7600	33	20	43
JUN 15...	--	--	--	--	--	--	530	6	2.8	100
JUL 21...	--	--	--	--	--	--	350	7	2.2	100
AUG 11...	ND	--	ND	--	ND	--	390	9	2.8	100
SEP 07...	--	--	--	--	--	--	330	5	1.5	100

ND Not detected.

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

PHYTOPLANKTON

DATE	OCT 25,76	NOV 4,76	JAN 21,77	FEB 14,77	MAY 19,77
TIME	1100	1315	1400	1130	1200
TOTAL CELLS/ML	6400	1000	1500	900	7600
DIVERSITY: DIVISION	0.4	1.7	1.3	0.7	1.2
.CLASS	0.4	1.7	1.3	0.7	1.3
..ORDER	1.0	1.9	1.8	1.4	1.8
...FAMILY	1.0	2.1	2.1	2.9	2.7
....GENUS	1.5	2.1	2.7	3.3	3.0

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	--	-	--	-	--	-	--	-
...COELASTRACEAE										
....COELASTRUM	--	-	--	-	--	-	--	-	--	-
...HYDRODICTYACEAE										
....PEDIASTRUM	--	-	--	-	--	-	--	-	--	-
...MICRACTINIACEAE										
....MICRACTINIUM	--	-	--	-	9	1	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	--	-	--	-	9	1	92	10	1300#	17
....DICTYOSPHAERIUM	--	-	13	1	86	6	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	14	1	12	1	83	1
....OOCYSTIS	--	-	--	-	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	33	2	--	-	--	-
....TETRAEDRON	--	-	--	-	51	3	--	-	--	-
...SCENEDESMACEAE										
....ACTINASTRUM	--	-	--	-	--	-	--	-	--	-
....CRUCIGENIA	--	-	26	2	37	3	61	7	--	-
....SCENEDESMUS	--	-	--	-	--	-	--	-	910	12
....TETRASTRUM	--	-	--	-	--	-	25	3	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	*	0	--	-	14	1	--	-	42	1
..ZYGNEMATALES										
...DESMIDIACEAE										
....COSMARIUM	--	-	--	-	19	1	--	-	--	-
....STAURASTRUM	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	*	0	--	-	28	2	18	2	660	9
....MELOSIRA	130	2	160#	16	65	4	150#	17	500	7
..PENNALES										
...ACHNANTHACEAE										
....COCCONEIS	--	-	--	-	--	-	--	-	--	-
....RHOICOSPHENIA	--	-	--	-	--	-	--	-	--	-
...CYMBELLACEAE										
....AMPHORA	--	-	--	-	--	-	--	-	--	-
....CYMBELLA	--	-	--	-	--	-	6	1	120	2
....EPITHEMIA	--	-	--	-	*	0	--	-	--	-
...DIATOMACEAE										
....DIATOMA	--	-	32	3	--	-	6	1	--	-
...FRAGILARIACEAE										
....ASTERIONELLA	110	2	--	-	--	-	6	1	83	1
....FRAGILARIA	--	-	--	-	46	3	220#	25	--	-
....SYNEDRA	--	-	--	-	*	0	25	3	250	3
...GOMPHONEMATACEAE										
....GOMPHONEMA	--	-	--	-	*	0	25	3	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

PHYTOPLANKTON

DATE TIME	OCT 25,76 1100		NOV 4,76 1315		JAN 21,77 1400		FEB 14,77 1130		MAY 19,77 1200	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
...MERIDIONACEAE										
....MERIDION	--	-	--	-	*	0	6	1	--	-
...NAVICULACEAE										
....DIPLONEIS	--	-	--	-	--	-	--	-	--	-
....GYROSIGMA	--	-	--	-	--	-	--	-	--	-
....NAVICULA	110	2	45	4	14	1	25	3	250	3
....PINNULARIA	--	-	--	-	--	-	6	1	--	-
...NITZSCHIACEAE										
....NITZSCHIA	*	0	--	-	79	5	130	14	120	2
...SURIRELLACEAE										
....SURIRELLA	--	-	--	-	--	-	12	1	--	-
...TABELLARIACEAE										
....TABELLARIA	--	-	26	2	--	-	67	8	2700#	36
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...MALLOMONADACEAE										
....MALLOMONAS	--	-	--	-	--	-	--	-	42	1
...OCHROMONADACEAE										
....DINOBRYON	--	-	--	-	--	-	--	-	83	1
CYANOPHYTA(BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS										
.....A. INCERTA	810	13	--	-	--	-	--	-	--	-
....ANACYSTIS	--	-	--	-	70	5	--	-	370	5
..HORMOGONALES										
...OSCILLATORIACEAE										
....LYNGBYA	4500#	71	--	-	70	5	--	-	--	-
....OSCILLATORIA	620	10	260#	25	810#	55	--	-	--	-
....SPIRULINA	*	0	--	-	--	-	--	-	--	-
...RIVULARIACEAE										
....RAPHIDIOPSIS	--	-	--	-	--	-	--	-	42	1
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	--	-	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	470#	46	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
 * - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

PHYTOPLANKTON

DATE	JUN 16,77	JUL 21,77	AUG 11,77	SEP 7,77
TIME	1200	0930	0930	1330
TOTAL CELLS/ML	530	350	390	330
DIVERSITY: DIVISION	1.0	1.1	1.0	1.7
.CLASS	1.0	1.1	1.0	1.7
..ORDER	1.5	1.2	1.5	2.3
...FAMILY	2.6	2.3	2.6	3.0
....GENUS	3.2	2.5	3.2	3.3

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	--	-	--	-	5	1	--	-
...COELASTRACEAE								
....COELASTRUM	--	-	66*	19	85*	22	--	-
...HYDRODICTYACEAE								
....PEDIASTRUM	23	4	--	-	--	-	--	-
...MICRACTINIACEAE								
....MICRACTINIUM	--	-	--	-	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	26	5	--	-	35	9	20	6
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	44	13	--	-	--	-
....SELENASTRUM	3	1	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	5	1	7	2
...SCENEDESMACEAE								
....ACTINASTRUM	17	3	--	-	--	-	--	-
....CRUCIGENIA	100*	20	--	-	30	8	--	-
....SCENEDESMUS	92*	17	140*	41	60*	15	46	14
....TETRASTRUM	--	-	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	--	-	5	1	--	-
..ZYGNEMATALES								
...DESMIDIACEAE								
....COSMARIUM	--	-	6	2	--	-	--	-
....STAURASTRUM	--	-	--	-	--	-	7	2
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	9	2	--	-	--	-	7	2
....MELOSIRA	72	14	*	0	75*	19	--	-
..PENNALES								
...ACHNANTHACEAE								
....COCCONEIS	--	-	--	-	--	-	7	2
....RHOICOSPHENIA	3	1	--	-	--	-	--	-
...CYMBELLACEAE								
....AMPHORA	23	4	--	-	10	3	--	-
....CYMBELLA	--	-	--	-	--	-	7	2
....EPITHEMIA	--	-	--	-	--	-	--	-
...DIATOMACEAE								
....DIATOMA	--	-	--	-	--	-	--	-
...FRAGILARIACEAE								
....ASTERIONELLA	20	4	--	-	--	-	--	-
....FRAGILARIA	--	-	--	-	--	-	--	-
....SYNEDRA	9	2	17	5	5	1	7	2
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	--	-	5	1	--	-

NOTE: * - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

PHYTOPLANKTON

DATE TIME	JUN 16,77 1200		JUL 21,77 0930		AUG 11,77 0930		SEP 7,77 1330	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
...MERIDIONACEAE								
....MERIDION	--	-	--	-	--	-	--	-
...NAVICULACEAE								
....DIPLONEIS	--	-	--	-	5	1	--	-
....GYROSIGMA	--	-	6	2	15	4	46	14
....NAVICULA	92*	17	28	8	35	9	46	14
....PINNULARIA	--	-	--	-	--	-	--	-
...NITZSCHIACEAE								
....NITZSCHIA	--	-	--	-	15	4	13	4
...SURIRELLACEAE								
....SURIRELLA	--	-	--	-	--	-	--	-
...TABELLARIACEAE								
....TABELLARIA	36	7	--	-	--	-	--	-
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...MALLOMONADACEAE								
....MALLOMONAS	--	-	--	-	--	-	--	-
...OCHROMONADACEAE								
....DINOBRYON	--	-	--	-	--	-	--	-
CYANOPHYTA(BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS								
.....A. INCERTA	--	-	--	-	--	-	--	-
....ANACYSTIS	--	-	--	-	--	-	52*	16
..HORMOGONALES								
...OSCILLATORIACEAE								
....LYNGBYA	--	-	--	-	--	-	--	-
....OSCILLATORIA	--	-	--	-	--	-	52*	16
....SPIRULINA	--	-	--	-	--	-	--	-
...RIVULARIACEAE								
....RAPHIDIOPSIS	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	6	2	--	-	--	-
....TRACHELOMONAS	3	1	33	10	--	-	13	4

NOTE: * - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
- OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

PERIPHYTON

Date	Length of exposure (days)	Biomass (g/m²)		Chlorophyll a (mg/m²)	Chlorophyll b (mg/m²)	Biomass pigment ratio	Sampler material
		Dry weight	Ash weight				
May 19	28	1500	1100	0.44	0.00	909	Polyethy. strip

01673500 TOTOPOTOMOY CREEK NEAR ATLEE, VA

LOCATION.--Lat 37°40'09", long 77°22'58", Hanover County, Hydrologic Unit 02080106, on right bank at upstream side of bridge on U.S. Highway 301, 0.7 mi (1.1 km) upstream from Opossum Creek, and 1.6 mi (2.6 km) northeast of Atlee.

DRAINAGE AREA.--5.89 mi² (15.26 km²).

PERIOD OF RECORD.--October 1948 to September 1977 (discontinued).

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 116.33 ft (35.457 m) above mean sea level. Prior to Aug. 9, 1954, at site 8 ft (2 m) downstream at datum 0.04 ft (0.012 m) higher.

REMARKS.--Records poor. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--29 years, 5.69 ft³/s (0.161 m³/s), 13.12 in/yr (333 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 748 ft³/s (21.2 m³/s) Aug. 13, 1955, gage height, 8.62 ft (2.627 m); no flow Aug. 4-7, 15-18, 1963.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood, probably in July 1945, reached a stage of 7.5 ft (2.29 m), from floodmarks, discharge, 400 ft³/s (11.3 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 41 ft³/s (1.16 m³/s) Sept. 10, no peak above base of 70 ft³/s (2.0 m³/s); minimum daily, 0.01 ft³/s (<0.001 m³/s) July 29, 31, Aug. 6, 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	5.8	1.6	.41	3.9	8.2	3.1	1.3	.65	.07	.26	.17
2	16	1.5	1.1	.29	4.1	7.9	2.9	1.1	.59	.05	.20	.17
3	25	1.1	.71	.24	4.9	7.0	3.1	1.1	.53	.05	.14	.17
4	2.7	.90	.53	.36	12	7.0	15	7.4	.47	.05	.07	.11
5	1.6	.71	.41	.59	15	8.2	37	4.0	.47	.03	.03	.11
6	1.1	.59	.41	.83	7.9	8.6	29	1.5	.65	.05	.01	.14
7	.77	.59	4.6	1.2	4.5	9.6	13	2.5	.47	.11	.01	.77
8	.88	.71	11	1.5	3.7	9.0	10	3.5	.36	.11	.06	.47
9	24	.71	4.5	1.8	3.7	6.7	6.7	1.5	.41	.09	.59	12
10	13	.47	1.8	4.1	5.2	3.3	4.3	.98	.26	.07	.53	41
11	2.6	.41	1.6	10	6.7	2.8	3.7	.71	.14	.07	.32	5.2
12	1.3	.68	2.2	5.2	7.0	2.6	3.9	.59	.16	.11	.32	1.6
13	.90	1.5	1.8	3.5	10	5.5	2.9	.59	.09	.17	1.1	.90
14	.71	1.3	1.1	4.3	9.2	6.4	2.5	.59	.09	.11	.28	.65
15	.53	1.1	.77	23	5.5	3.3	2.4	.53	.11	.07	.17	.36
16	.47	1.1	.90	20	4.5	2.7	2.2	.47	.05	.05	.14	1.3
17	2.2	.58	.83	13	3.1	4.7	2.2	.47	.07	.05	.42	36
18	4.9	.83	.65	7.3	2.2	5.5	2.2	.47	.14	.07	.41	12
19	2.5	.71	.47	5.5	2.9	8.2	2.2	.47	.14	.05	.14	3.5
20	17	.65	.71	4.7	2.7	15	1.9	.53	.03	.05	.05	1.2
21	37	.65	1.9	4.3	3.0	18	1.8	.47	.03	.03	.07	.65
22	4.0	.65	1.1	3.4	3.6	25	1.6	.41	.03	.11	.09	.41
23	1.8	.26	.77	3.5	4.2	31	1.6	.41	.07	.07	.09	.20
24	1.5	.20	.59	3.6	5.2	16	1.6	.47	.07	.05	1.7	.11
25	1.6	.20	.41	4.2	11	11	1.6	1.3	.07	.09	.77	.07
26	23	.17	2.2	4.6	9.3	9.2	1.5	1.3	.05	.09	.36	.05
27	8.6	.26	1.9	5.3	8.6	6.7	1.4	.60	.05	.03	.41	.03
28	2.1	1.6	1.1	5.8	7.3	5.8	1.2	.53	.39	.02	.29	.02
29	1.5	12	.77	17	---	4.9	1.7	.65	.20	.01	.20	.02
30	1.3	10	.71	7.0	---	4.0	1.6	.71	.09	.02	.20	.02
31	6.7	---	.59	4.5	---	3.5	---	.59	---	.01	.20	---
TOTAL	208.56	48.59	49.73	172.21	170.2	266.1	165.8	38.04	6.89	2.01	9.62	119.40
MEAN	6.73	1.62	1.60	5.56	6.08	8.58	5.53	1.23	.23	.065	.31	3.98
MAX	37	12	11	23	15	31	37	7.4	.65	.17	1.7	41
MIN	.47	.17	.41	.24	2.2	2.6	1.2	.41	.03	.01	.01	.02
CFSM	1.14	.28	.27	.94	1.03	1.46	.94	.21	.04	.01	.05	.68
IN.	1.32	.31	.31	1.09	1.07	1.68	1.05	.24	.04	.01	.06	.76

CAL YR 1976 TOTAL 1651.05 MEAN 4.51 MAX 85 MIN .07 CFSM .77 IN 10.43
WTR YR 1977 TOTAL 1257.15 MEAN 3.44 MAX 41 MIN .01 CFSM .58 IN 7.94

01673800 PO RIVER NEAR SPOTSYLVANIA, VA

LOCATION.--Lat 38°10'17", long 77°35'42", Spotsylvania County, Hydrologic Unit 02080105, on right bank at upstream side of bridge on State Highway 208, 1.6 mi (2.6 km) north of Snell, 2.0 mi (3.2 km) south of Spotsylvania, 4.8 mi (7.7 km) downstream from Gladys Run, and 4.9 mi (7.9 km) upstream from U.S. Highway 1.

DRAINAGE AREA.--77.4 mi² (200.5 km²).

PERIOD OF RECORD.--October 1962 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 183.76 ft (56.010 m) above mean sea level. Prior to Sept. 30, 1964, nonrecording gage at same site and datum.

REMARKS.--Records good except those for January and February, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--15 years, 74.4 ft³/s (2.107 m³/s), 13.05 in/yr (331 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,900 ft³/s (309 m³/s) June 22, 1972, gage height, 19.03 ft (5.800 m), from rating curve extended above 3,400 ft³/s (96 m³/s); minimum daily, 0.10 ft³/s (0.003 m³/s) Oct. 24-29, 1963, Sept. 6-13, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,140 ft³/s (32.3 m³/s) at 2130 hours Oct. 21, gage height, 8.88 ft (2.707 m), no other peak above base of 900 ft³/s (25 m³/s); minimum, 0.32 ft³/s (0.009 m³/s) Aug. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	236	78	52	52	55	41	30	10	3.7	.45	.74
2	62	66	56	50	54	47	38	25	11	3.5	.54	.64
3	420	69	51	47	56	43	44	23	11	2.8	.64	.66
4	142	60	44	45	58	43	61	24	9.2	2.5	.83	3.7
5	61	56	41	47	60	47	170	398	8.0	2.2	.64	1.4
6	29	47	42	48	62	47	163	284	7.7	2.0	.74	4.2
7	20	42	222	47	58	43	86	71	7.3	2.2	.42	12
8	17	41	538	45	56	40	65	49	6.1	2.1	.38	2.8
9	142	38	171	43	58	37	55	38	7.7	2.1	.42	2.2
10	445	37	99	42	60	36	48	29	16	2.2	.38	3.3
11	47	38	92	42	62	35	46	25	14	2.1	.35	2.4
12	43	40	91	42	64	35	44	23	9.6	2.5	.38	1.7
13	30	44	93	44	65	42	42	22	7.7	2.5	.45	1.1
14	24	50	73	46	62	152	40	20	7.0	2.5	.83	1.0
15	20	45	65	54	58	80	38	18	6.4	2.4	1.2	.92
16	17	41	67	70	58	58	36	16	6.1	2.0	1.1	.92
17	21	39	65	62	54	47	34	15	5.1	1.8	1.3	2.1
18	44	37	59	56	51	43	32	14	4.9	2.0	1.1	2.5
19	37	36	52	52	47	42	30	13	4.6	1.5	1.0	2.1
20	172	35	56	50	44	43	30	13	4.2	1.4	.92	1.8
21	826	33	100	49	42	69	28	12	4.2	1.5	.74	1.4
22	464	32	83	44	40	115	27	11	4.0	1.5	.74	1.0
23	87	30	82	44	36	306	26	11	3.7	1.7	.74	.83
24	54	29	59	51	50	116	27	9.6	3.5	.83	.92	.74
25	74	29	50	53	116	75	28	14	4.2	.74	1.1	.64
26	405	30	73	52	87	63	27	23	9.2	.83	1.0	.64
27	556	31	95	50	62	53	25	23	9.6	.74	.83	.54
28	112	34	67	52	63	50	25	17	7.7	.64	.83	.54
29	70	42	64	55	---	50	34	13	6.4	.45	.74	.45
30	61	186	68	55	---	48	42	11	4.9	.54	.64	.45
31	176	---	54	51	---	45	---	9.6	---	.54	.64	---
TOTAL	4841	1643	2808	1549	1639	1983	1432	1304.2	221.0	56.01	22.99	55.41
MEAN	156	54.8	90.6	50.0	58.5	64.0	47.7	42.1	7.37	1.81	.74	1.85
MAX	826	236	538	70	116	306	170	398	16	3.7	1.3	12
MIN	17	29	41	42	36	35	25	9.6	3.5	.45	.35	.45
CFSM	2.02	.71	1.17	.65	.76	.83	.62	.54	.10	.02	.01	.02
IN.	2.33	.79	1.35	.74	.79	.95	.69	.63	.11	.03	.01	.03

CAL YR 1976 TOTAL 29836.50 MEAN 81.5 MAX 1300 MIN 1.6 CFSM 1.05 IN 14.36
WTR YR 1977 TOTAL 17556.61 MEAN 48.1 MAX 826 MIN .35 CFSM .62 IN 8.44

01674000 MATTAPONI RIVER NEAR BOWLING GREEN, VA

LOCATION.--Lat 38°03'42", long 77°23'10", Caroline County, Hydrologic Unit 02080105, on left bank 0.1 mi (0.2 km) upstream from bridge on State Highway 605, 2.2 mi (3.5 km) northwest of Bowling Green, 2.4 mi (3.9 km) upstream from South River, and 7.1 mi (11.4 km) downstream from confluence of Matta and Poni Rivers.

DRAINAGE AREA.--257 mi² (666 km²).

PERIOD OF RECORD.--September 1942 to current year.

REVISED RECORDS.--WSP 1382: 1943, 1945(M), 1948(M), 1949, 1953(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 85.14 ft (25.951 m) above mean sea level.

REMARKS.--Records good except those for January and February, which are fair. Some diurnal fluctuation from gristmill upstream on Po River. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--35 years, 236 ft³/s (6.684 m³/s), 12.47 in/yr (317 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,400 ft³/s (379 m³/s) June 23, 1972, gage height, 18.95 ft (5.776 m), from high-water mark in well, from rating curve extended above 8,100 ft³/s (230 m³/s); no flow at times in September and October 1954, and September 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1928 reached a stage of 19.5 ft (5.94 m) based on relative difference in stage between this flood and flood of Oct. 17, 1942, at Milford 4 mi (6 km) downstream, discharge, 15,000 ft³/s (425 m³/s), from rating curve extended above 8,100 ft³/s (230 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,750 ft³/s (49.6 m³/s) Oct. 23, gage height, 9.47 ft (2.886 m), no peak above base of 2,000 ft³/s (57 m³/s); minimum, 0.60 ft³/s (0.017 m³/s) Aug. 16, 17, 23, 24, gage height, 1.20 ft (0.366 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	500	383	190	190	219	150	184	30	14	1.9	.81
2	127	594	357	185	200	190	138	88	28	11	1.9	.75
3	324	555	275	180	210	170	141	80	27	9.6	2.7	.68
4	448	481	211	179	225	160	164	83	25	7.5	2.7	.72
5	564	306	190	164	260	164	253	94	23	6.0	1.8	.78
6	428	260	177	160	255	164	360	211	21	5.1	1.7	.78
7	205	224	234	155	265	160	342	481	19	4.5	1.6	2.4
8	122	204	448	160	250	150	392	383	16	4.3	2.1	4.0
9	212	184	954	169	260	141	232	294	16	4.8	1.3	13
10	364	177	450	165	265	132	194	134	16	6.9	.88	11
11	478	170	635	165	275	128	164	103	15	8.9	.75	11
12	588	170	428	179	280	125	155	83	15	10	.69	9.2
13	341	168	366	189	300	118	144	71	19	30	.72	7.8
14	172	197	323	195	316	167	134	65	18	22	.74	6.5
15	114	169	282	240	323	197	127	54	15	10	.69	5.6
16	87	184	260	279	304	190	120	51	15	7.2	.60	2.9
17	83	170	244	260	294	163	111	45	15	6.0	.66	3.1
18	118	164	232	279	285	168	105	40	13	8.2	.81	3.4
19	124	163	214	240	270	142	99	34	13	22	.75	3.4
20	153	154	204	219	260	166	95	36	12	13	.75	4.0
21	448	145	225	200	234	154	99	32	13	8.9	.72	3.1
22	1090	143	234	185	200	197	86	30	15	11	.72	2.4
23	1600	137	240	180	190	348	79	27	12	15	.63	2.1
24	940	132	225	185	184	442	82	25	10	11	.66	1.8
25	914	131	190	195	243	442	130	35	10	7.2	.78	1.6
26	348	130	225	210	290	308	121	54	14	6.0	1.7	1.3
27	244	132	253	219	275	232	101	62	22	5.1	1.7	1.3
28	71	138	253	200	246	197	88	56	21	3.8	1.3	1.0
29	74	239	246	200	---	144	91	44	20	2.9	.90	1.3
30	242	384	224	204	---	170	102	34	18	2.4	.86	1.0
31	424	---	205	219	---	166	---	32	---	2.2	1.2	---
TOTAL	11276	6848	9680	6044	7148	6093	4543	2807	526	288.5	36.59	111.87
MEAN	364	228	312	197	255	197	151	90.5	17.5	9.26	1.18	3.73
MAX	1600	594	954	240	323	442	392	481	30	30	2.7	13
MIN	71	130	177	155	184	125	79	25	10	2.2	.60	.68
CFSM	1.42	.89	1.21	.77	.99	.77	.59	.35	.07	.04	.005	.02
IN.	1.63	.99	1.40	.88	1.03	.88	.66	.41	.08	.04	.01	.02

CAL YR 1976 TOTAL 98900.70 MEAN 270 MAX 3330 MIN 4.0 CFSM 1.05 IN 14.32
WTR YR 1977 TOTAL 55445.46 MEAN 152 MAX 1600 MIN .60 CFSM .59 IN 8.03

01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA

LOCATION.--Lat 37°53'16", long 77°09'48", King and Queen County, Hydrologic Unit 02080105, on left bank 0.4 mi (0.6 km) upstream from bridge on State Highway 628, 2.4 mi (3.9 km) north of Beulahville, and 2.7 mi (4.3 km) downstream from Maracossic Creek.

DRAINAGE AREA.--601 mi² (1,557 km²).

PERIOD OF RECORD.--September 1941 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 12.43 ft (3.789 m) above mean sea level (levels by Virginia Department of Highways and Transportation). Prior to Oct. 14, 1942, nonrecording gage, and Oct. 15, 1942, to Aug. 8, 1974, water-stage recorder at site 80 ft (24 m) upstream at same datum.

REMARKS.--Records good. Diurnal fluctuation at times during low flow caused by gristmill on Po River. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--36 years, 585 ft³/s (16.57 m³/s), 13.22 in/yr (336 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,900 ft³/s (479 m³/s) June 25, 1972, gage height, 23.97 ft (7.306 m), from floodmarks; maximum gage height, 24.04 ft (7.327 m) Aug. 23, 1969; minimum discharge, 5.9 ft³/s (0.17 m³/s) Sept. 14, 1966, gage height, 0.94 ft (0.287 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,260 ft³/s (64.0 m³/s) Oct. 27, gage height, 12.99 ft (3.959 m); minimum, 12 ft³/s (0.34 m³/s) Aug. 13, gage height, 1.43 ft (0.436 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	398	1640	990	534	508	625	426	263	115	48	25	14
2	540	1420	1010	482	471	550	393	249	110	42	28	13
3	763	1210	897	524	466	490	385	250	103	36	24	13
4	851	1130	747	502	489	457	427	243	91	33	27	44
5	876	1070	609	463	552	452	601	295	81	29	27	97
6	841	892	507	467	580	476	790	246	76	27	25	81
7	775	714	561	442	569	486	812	364	76	26	22	39
8	564	639	914	442	552	471	780	737	71	27	20	34
9	577	577	1030	485	492	445	718	843	68	38	17	107
10	881	507	1160	541	478	420	587	632	69	67	15	649
11	1070	458	1280	624	493	403	462	392	68	140	14	481
12	1110	458	1410	675	546	391	437	293	65	169	14	187
13	954	500	1470	743	606	380	406	244	59	138	13	108
14	816	520	1190	771	658	453	378	210	53	136	13	75
15	532	513	874	803	676	471	354	183	54	191	14	58
16	372	500	777	893	698	442	330	160	64	162	16	55
17	334	477	733	857	655	445	319	144	63	98	16	72
18	384	457	667	785	549	410	304	129	59	69	17	71
19	409	431	589	700	509	400	288	118	58	51	23	55
20	436	422	551	640	532	437	272	109	53	41	22	44
21	746	410	594	580	515	506	268	104	48	38	19	38
22	1000	341	612	505	491	544	260	96	52	46	18	34
23	1170	373	590	480	441	759	248	89	51	42	16	31
24	1260	364	572	470	438	898	241	85	44	41	16	28
25	1610	353	532	520	566	940	292	107	45	41	26	28
26	2050	359	555	549	643	982	346	211	52	41	33	28
27	2220	364	655	543	658	879	375	276	56	36	26	26
28	1940	378	688	561	674	605	317	235	59	30	23	26
29	1640	506	658	595	---	514	279	181	59	27	20	23
30	1550	795	643	584	---	482	264	144	54	25	18	22
31	1610	---	632	564	---	463	---	123	---	26	16	---
TOTAL	30306	18814	24605	18329	15505	16666	12387	7715	1972	1961	629	2477
MEAN	976	627	794	591	554	538	413	249	65.7	63.3	20.3	82.6
MAX	2220	1640	1470	893	698	982	812	843	115	191	33	649
MIN	334	353	507	442	438	380	241	85	44	25	13	13
CFSM	1.63	1.04	1.32	.98	.92	.90	.69	.41	.11	.11	.03	.14
IN.	1.88	1.16	1.52	1.13	.96	1.03	.77	.48	.12	.12	.04	.15

CAL YR 1976 TOTAL 243449 MEAN 665 MAX 3680 MIN 41 CFSM 1.11 IN 15.07
WTR YR 1977 TOTAL 151366 MEAN 415 MAX 2220 MIN 13 CFSM .69 IN 9.37

JAMES RIVER BASIN

02011400 JACKSON RIVER NEAR BACOVA, VA

LOCATION.--Lat 38°02'32", long 79°52'54", Bath County, Hydrologic Unit 02080201, on left bank 0.1 mi (0.2 km) downstream from ford, 1.8 mi (2.9 km) upstream from Back Creek, and 2.2 mi (3.5 km) southwest of Bacova.

DRAINAGE AREA.--158 mi² (409 km²).

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,639.20 ft (499.628 m) above mean sea level.

REMARKS.--Records good except those for January and February, which are fair. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,970 ft³/s (197 m³/s) Apr. 5, 1977, gage height, 13.39 ft (4.081 m), from rating curve extended above 1,300 ft³/s (37 m³/s) on basis of slope-area measurements at gage heights 8.88 ft (2.707 m), 11.40 ft (3.475 m), and 13.88 ft (4.231 m); minimum, 27 ft³/s (0.76 m³/s) Sept. 2, 4, 5, 13, 14, 30, 1977; minimum gage height, 3.03 ft (0.924 m) Sept. 2, 5, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of 11.40 ft (3.475 m), discharge, 4,800 ft³/s (136 m³/s), and flood of Dec. 26, 1973, reached a stage of 13.88 ft (4.231 m), discharge, 7,560 ft³/s (214 m³/s), from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s (42 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1340	3800	108	10.39	3.167	Apr. 5	0655	*6970	197	13.39	4.081
Mar. 13	1315	3130	88.6	9.64	2.938						

Minimum discharge, 27 ft³/s (0.76 m³/s) Sept. 2, 4, 5, 13, 14, 30; minimum gage height, 3.03 ft (0.924 m) Sept. 2, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	118	445	119	50	40	220	125	83	42	32	29	28
2	104	333	111	60	43	181	119	77	40	32	28	27
3	141	275	111	75	42	156	122	71	39	30	29	28
4	97	236	107	72	45	154	896	77	37	29	29	27
5	70	198	100	78	45	214	4590	94	36	30	28	27
6	60	172	85	66	40	190	1460	85	40	30	28	29
7	56	154	724	64	37	174	822	83	39	29	28	29
8	359	141	514	54	37	155	606	85	37	29	28	35
9	2640	127	341	60	39	138	441	77	43	29	28	32
10	1080	124	266	64	45	126	360	72	42	30	28	29
11	475	115	239	48	50	116	309	71	37	42	28	28
12	312	112	250	40	60	113	260	66	38	37	30	28
13	230	102	233	54	100	1810	232	64	36	43	31	27
14	185	95	192	58	125	952	210	61	45	33	32	27
15	153	95	180	62	140	542	193	60	48	30	30	28
16	132	96	173	50	120	395	174	56	40	29	29	28
17	125	90	162	37	95	299	160	53	36	28	32	28
18	117	89	145	45	86	288	150	53	36	28	34	28
19	100	88	130	52	82	264	144	53	34	28	30	28
20	210	86	127	56	88	250	134	50	33	28	28	37
21	393	83	125	54	75	227	122	48	34	28	28	33
22	273	82	114	50	66	421	117	46	33	29	28	29
23	209	78	90	45	82	474	111	46	34	28	28	28
24	189	74	80	50	374	372	113	47	33	28	32	28
25	346	73	85	54	521	295	113	50	36	33	39	28
26	558	74	95	54	329	245	104	48	36	42	31	28
27	369	78	90	52	302	207	103	45	33	33	29	28
28	277	82	88	45	283	188	96	43	32	29	28	28
29	224	131	85	34	---	171	93	43	32	29	28	28
30	203	131	70	37	---	153	88	45	32	33	28	27
31	586	---	80	40	---	139	---	42	---	30	28	---
TOTAL	10391	4059	5311	1660	3391	9629	12567	1894	1113	968	914	863
MEAN	335	135	171	53.5	121	311	419	61.1	37.1	31.2	29.5	28.8
MAX	2640	445	724	75	521	1810	4590	94	48	43	39	37
MIN	56	73	70	34	37	113	88	42	32	28	28	27
CFSM	2.12	.85	1.08	.34	.77	1.97	2.65	.39	.24	.20	.19	.18
IN.	2.45	.96	1.25	.39	.80	2.27	2.96	.45	.26	.23	.22	.20

CAL YR 1976 TOTAL 52976 MEAN 145 MAX 2640 MIN 28 CFSM .92 IN 12.47
WTR YR 1977 TOTAL 52760 MEAN 145 MAX 4590 MIN 27 CFSM .92 IN 12.42

02011460 BACK CREEK NEAR SUNRISE, VA

LOCATION.--Lat 38°14'43", long 79°46'08", Bath County, Hydrologic Unit 02080201, on right bank 900 ft (270 m) upstream from bridge on State Highway 600, 0.8 mi (1.3 km) upstream from Gap Run, and 4.8 mi (7.7 km) northeast of Sunrise.

DRAINAGE AREA.--56.7 mi² (146.9 km²).

PERIOD OF RECORD.--June 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,200.02 ft (670.566 m) above mean sea level (levels by Virginia Department of Highways and Transportation).

REMARKS.--Records good except those for January and February, and those for period of no gage-height record, Apr. 5-15, which are poor. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,200 ft³/s (119 m³/s) Oct. 18, 1975, gage height, 6.30 ft (1.920 m); minimum, 3.1 ft³/s (0.088 m³/s) July 21, 1977, gage height, 0.07 ft (0.021 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 850 ft³/s (24 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	0900	3900	110	6.15	1.875	Mar. 13	0900	2920	82.7	5.60	1.707
Feb. 24	---	Unknown		Unknown		Apr. 5	---	*Unknown		Unknown	

Minimum discharge, 3.1 ft³/s (0.088 m³/s) July 21, gage height, 0.07 ft (0.021 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	328	104	18	15	192	50	34	24	11	8.0	6.3
2	69	216	79	18	16	129	48	35	18	9.4	5.5	5.5
3	112	165	57	19	20	91	49	35	16	8.0	8.3	4.7
4	76	127	53	21	20	132	586	45	14	7.4	8.0	4.1
5	52	95	43	20	18	316	2200	69	12	6.6	5.5	26
6	38	75	37	18	17	227	500	69	16	7.4	5.2	14
7	34	61	388	17	16	168	230	74	14	6.3	5.0	12
8	720	55	360	17	16	123	170	71	12	6.3	5.0	21
9	2460	49	224	16	17	89	133	70	18	6.3	5.8	13
10	610	50	162	16	20	74	118	59	18	6.3	5.2	9.8
11	292	42	127	15	32	61	106	51	14	12	5.5	7.7
12	182	41	112	15	50	59	94	45	14	11	8.4	6.0
13	127	36	101	15	64	1400	84	40	12	10	8.0	5.5
14	93	33	82	16	70	512	76	38	19	7.7	6.8	5.2
15	67	37	82	18	50	304	70	35	23	6.0	11	5.0
16	54	37	75	16	45	216	64	31	19	5.5	10	5.0
17	51	36	66	14	41	160	59	27	17	5.0	12	5.0
18	45	40	53	14	37	150	54	25	16	4.1	18	5.0
19	35	39	47	14	33	118	52	24	14	3.6	12	5.2
20	165	39	47	14	32	110	50	23	14	3.4	6.1	12
21	392	38	41	15	31	106	44	21	14	3.3	7.6	9.8
22	241	39	41	15	35	228	41	19	13	3.6	8.3	8.0
23	155	34	38	15	141	322	38	18	11	3.6	5.5	6.6
24	125	30	37	16	528	241	42	17	11	3.6	26	5.5
25	160	32	36	16	530	182	39	17	11	14	31	5.2
26	374	32	31	16	334	138	37	16	14	25	17	7.4
27	265	46	30	16	344	106	37	15	11	12	12	9.8
28	178	67	28	17	298	88	33	14	11	8.4	6.6	7.7
29	129	106	26	15	---	75	38	14	12	7.4	7.7	6.3
30	108	110	25	14	---	62	35	16	11	8.4	7.0	5.8
31	466	---	20	14	---	56	---	32	---	7.7	8.8	---
TOTAL	7942	2133	2650	500	2870	6235	5177	1099	443	240.3	297.6	250.1
MEAN	256	71.1	85.5	16.1	103	201	173	35.5	14.8	7.75	9.59	8.34
MAX	2460	328	388	21	530	1400	2200	74	24	25	31	26
MIN	34	30	20	14	15	56	33	14	11	3.3	5.0	4.1
CFSM	4.51	1.25	1.51	.28	1.82	3.54	3.05	.63	.26	.14	.17	.15
IN.	5.21	1.40	1.74	.33	1.88	4.09	3.40	.72	.29	.16	.20	.16

CAL YR 1976 TOTAL 32365.4 MEAN 88.4 MAX 2460 MIN 3.8 CFSM 1.56 IN 21.23
WTR YR 1977 TOTAL 29836.8 MEAN 81.7 MAX 2460 MIN 3.3 CFSM 1.44 IN 19.57

02011480 BACK CREEK ON ROUTE 600, NEAR MOUNTAIN GROVE, VA

LOCATION.--Lat 38°08'05", long 79°51'57", Bath County, Hydrologic Unit 02080201, on right bank 70 ft (21 m) upstream from bridge on State Highway 600, 2.8 mi (4.5 km) northeast of Mountain Grove, and 3.0 mi (4.8 km) upstream from Little Back Creek.

DRAINAGE AREA.--85.8 mi^2 (222.2 km^2).

PERIOD OF RECORD.--October 1973 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,818.05 ft (554.142 m) above mean sea level (levels by Virginia Department of Highways and Transportation).

REMARKS.--Records good except those for January and February, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,420 ft^3/s (210 m^3/s) Dec. 26, 1973, gage height, 9.90 ft (3.018 m), from rating curve extended above 5,200 ft^3/s (150 m^3/s) on basis of runoff comparisons with nearby stations; minimum, 5.0 ft^3/s (0.14 m^3/s) July 21, 1977, gage height, 1.08 ft (0.329 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,300 ft^3/s (37 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 9	1200	5460	155	8.60	2.621	Mar. 13	1130	4840	137	8.15	2.484
Feb. 24	2100	1410	39.9	5.28	1.609	Apr. 5	0330	*6880	195	9.43	2.874

Minimum discharge, 5.0 ft^3/s (0.14 m^3/s) July 21, gage height, 1.08 ft (0.329 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100	428	117	26	23	232	132	42	36	16	10	11
2	83	288	114	26	24	179	128	41	27	15	8.8	8.8
3	125	193	90	27	30	152	126	40	23	13	15	8.1
4	92	158	82	30	30	153	992	49	19	11	13	7.7
5	62	130	72	28	27	335	4150	92	18	10	11	16
6	45	111	65	27	26	261	780	103	19	11	9.2	20
7	40	97	536	25	25	207	360	103	20	11	9.2	23
8	929	89	473	26	25	177	250	104	18	9.2	8.4	20
9	3630	78	260	25	26	159	198	96	19	9.2	8.4	21
10	1050	76	187	25	30	145	174	85	22	10	8.8	16
11	350	71	158	24	43	134	159	76	19	12	11	13
12	206	67	148	23	60	128	129	63	17	15	14	11
13	148	61	142	23	80	2360	113	58	17	16	15	9.6
14	118	55	125	24	110	994	106	52	24	13	17	9.2
15	97	59	124	27	120	445	98	48	31	11	15	9.2
16	81	59	117	24	90	307	86	44	25	9.2	13	9.2
17	75	59	107	21	77	243	77	39	22	8.1	17	9.2
18	67	59	91	21	72	228	71	37	21	6.9	42	9.2
19	57	60	79	21	66	209	66	36	19	5.8	20	9.6
20	117	60	77	21	63	195	63	33	17	5.4	15	10
21	486	60	73	23	60	192	58	29	17	6.2	12	16
22	277	60	66	23	80	303	54	28	16	8.4	11	13
23	179	57	62	23	223	445	51	26	16	6.2	10	12
24	148	50	60	24	625	332	53	25	16	5.8	13	11
25	170	53	60	25	715	261	53	27	16	11	22	10
26	499	91	58	25	387	214	49	26	18	29	21	10
27	328	99	56	25	383	186	50	24	17	18	17	12
28	214	79	53	24	337	173	45	22	17	13	14	13
29	159	112	50	23	---	163	46	21	17	11	12	11
30	137	124	50	22	---	149	44	21	16	13	11	10
31	586	---	48	21	---	141	---	33	---	12	11	---
TOTAL	10863	2935	3800	753	3857	9802	8767	1521	597	351.6	439.8	385.0
MEAN	344	97.8	123	24.3	138	316	292	49.1	19.9	11.3	14.2	12.9
MAX	3630	428	536	30	715	2360	4150	104	36	29	42	29
MIN	40	50	48	21	23	128	44	21	16	5.4	8.4	7.7
CFSM	4.01	1.14	1.43	.28	1.61	3.68	3.40	.57	.23	.13	.17	.15
IN.	4.62	1.27	1.65	.33	1.67	4.25	3.80	.66	.26	.15	.19	.17

CAL YR 1976 TOTAL 45035.3 MEAN 123 MAX 3630 MIN 6.1 CFSM 1.43 IN 19.52
WTR YR 1977 TOTAL 43872.0 MEAN 120 MAX 4150 MIN 5.4 CFSM 1.40 IN 19.01

02011500 BACK CREEK NEAR MOUNTAIN GROVE, VA

LOCATION.--Lat 38°04'10", long 79°53'50", Bath County, Hydrologic Unit 02080201, on left bank 0.5 mi (0.8 km) downstream from Cummings Run, 0.8 mi (1.3 km) downstream from bridge on State Highway 39, and 2.1 mi (3.4 km) south of Mountain Grove.

DRAINAGE AREA.--134 mi² (347 km²).

PERIOD OF RECORD.--October 1951 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,701.45 ft (518.602 m) above mean sea level.

REMARKS.--Records good except those for January and February, which are poor. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--26 years, 180 ft³/s (5.098 m³/s), 18.24 in/yr (463 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,700 ft³/s (360 m³/s) Mar. 7, 1967, gage height, 10.77 ft (3.283 m), from rating curve extended above 4,000 ft³/s (110 m³/s) on basis of slope-area measurements at gage heights 7.39 ft (2.252 m), 9.05 ft (2.758 m), and 9.35 ft (2.850 m); minimum, 1.5 ft³/s (0.042 m³/s) Aug. 18, 1967; minimum gage height, 1.67 ft (0.509 m) Oct. 14, 1951.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,900 ft³/s (54 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1130	8510	241	9.31	2.838	Mar. 13	1030	7310	207	8.82	2.688
Feb. 24	2100	2060	58.3	5.63	1.716	Apr. 5	0300	*11000	312	10.23	3.118

Minimum discharge, 9.8 ft³/s (0.28 m³/s) July 21, gage height, 1.71 ft (0.521 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	114	705	188	42	35	349	132	80	64	22	16	17
2	104	447	180	47	38	276	128	66	38	19	16	16
3	142	339	142	44	47	237	126	64	32	17	20	15
4	128	266	130	49	47	222	2000	74	28	16	18	13
5	92	216	114	44	43	444	6100	124	26	16	16	16
6	73	189	108	45	41	390	1320	165	28	16	16	21
7	66	155	937	41	40	310	470	160	28	16	16	22
8	1080	140	855	41	40	252	447	152	26	15	16	27
9	5330	126	492	39	43	219	326	140	30	14	16	23
10	1409	124	339	39	47	189	262	124	35	15	16	19
11	509	116	276	38	46	162	225	104	29	16	18	16
12	290	110	262	36	93	152	186	95	26	20	21	15
13	201	100	246	36	130	3570	158	87	25	23	22	13
14	152	95	237	38	168	1350	145	80	33	18	23	12
15	122	95	225	42	186	663	134	74	46	16	22	12
16	104	97	206	39	130	447	122	68	37	16	21	12
17	95	97	180	35	110	322	110	62	32	13	22	13
18	87	89	155	33	100	298	104	58	29	12	27	13
19	77	100	136	33	96	272	97	56	28	11	25	12
20	204	100	130	33	90	255	94	52	25	11	23	19
21	800	100	126	37	88	252	87	60	26	10	22	17
22	476	102	102	37	120	448	83	66	26	13	20	15
23	208	97	112	37	250	498	80	60	26	11	19	16
24	265	89	105	38	990	503	83	38	23	11	22	16
25	324	92	98	40	1100	370	83	43	25	16	35	14
26	535	99	104	39	650	246	77	60	26	37	27	16
27	580	97	97	36	516	234	77	36	25	26	23	16
28	380	122	95	37	551	207	71	32	23	19	21	16
29	280	171	90	37	---	186	70	32	26	17	19	15
30	234	204	81	36	---	160	66	31	22	20	18	16
31	810	---	78	35	---	145	---	60	---	17	18	---
TOTAL	15866	4861	6643	1203	6031	13944	13661	2299	871	517	632	475
MEAN	512	162	214	38.8	215	450	455	74.2	29.0	16.7	20.4	15.8
MAX	5330	705	937	49	1100	3570	6100	165	46	37	35	27
MIN	66	89	78	33	35	145	66	31	22	10	16	12
CFSM	3.82	1.21	1.60	.29	1.60	3.36	3.40	.55	.22	.13	.15	.12
IN.	4.40	1.35	1.84	.33	1.67	3.87	3.79	.64	.24	.14	.18	.13

CAL YR 1976 TOTAL 66662 MEAN 182 MAX 5330 MIN 10 CFSM 1.36 IN 18.46
WTR YR 1977 TOTAL 67001 MEAN 184 MAX 6100 MIN 10 CFSM 1.37 IN 18.60

02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA

LOCATION.--Lat 37°56'54", long 79°56'58", Alleghany County, Hydrologic Unit 02080201, on right bank 0.4 mi (0.6 km) upstream from Cedar Creek, 0.5 mi (0.8 km) downstream from Gathright Dam, and 7.3 mi (11.7 km) southwest of Hot Springs.

DRAINAGE AREA.--345 mi² (894 km²).

PERIOD OF RECORD.--October 1973 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,400.00 ft (426.720 m) above mean sea level (Corps of Engineers bench mark). Prior to Dec. 20, 1973, nonrecording gage at same site and datum.

REMARKS.--Records good. Some regulation at high flow since October 1973 by Gathright Dam (under construction). Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,000 ft³/s (821 m³/s) Dec. 26, 1973, result of cofferdam failure during construction of Gathright Dam, gage height, 18.77 ft (5.721 m), from rating curve extended above 4,400 ft³/s (125 m³/s) on basis of slope-area measurement of peak flow; minimum, 66 ft³/s (1.87 m³/s) Jan. 30, 1977, result of freezeup; minimum daily, 73 ft³/s (2.07 m³/s) Oct. 3, 12-14, 1974; minimum gage height, 8.23 ft (2.509 m) Oct. 27, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of 17.20 ft (5.243 m), from floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,800 ft³/s (391 m³/s) Apr. 5, gage height, 15.95 ft (4.862 m), from rating curve extended as explained above; minimum, 66 ft³/s (1.87 m³/s) Jan. 30, gage height, 8.40 ft (2.560 m), result of freezeup; minimum daily, 78 ft³/s (2.21 m³/s) July 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	278	1480	394	130	110	803	366	199	135	90	88	84
2	261	997	389	166	115	624	320	193	128	99	85	85
3	328	765	333	196	115	514	329	193	121	93	82	84
4	299	644	291	193	120	469	1950	205	114	90	91	81
5	224	545	272	187	133	739	12600	258	110	98	87	80
6	182	484	248	178	110	727	6580	333	114	91	84	87
7	162	404	1810	175	100	629	1920	316	117	96	84	91
8	1120	360	1940	143	100	545	1340	312	112	88	84	117
9	8120	324	1140	161	105	474	997	287	117	85	82	112
10	4710	307	810	172	117	419	790	265	126	85	81	98
11	1420	291	678	130	138	379	672	244	119	96	82	90
12	847	280	660	110	166	351	584	224	117	102	87	84
13	619	258	666	150	258	5960	519	208	112	112	94	82
14	494	241	594	161	337	3250	479	199	117	102	107	81
15	399	234	545	166	384	1600	445	190	143	98	94	80
16	333	237	514	158	307	1100	399	178	133	87	93	81
17	303	234	474	108	251	817	360	169	121	84	94	81
18	290	231	420	114	234	727	333	161	114	82	106	81
19	251	234	360	140	227	716	316	158	112	81	106	81
20	434	231	335	150	234	655	299	153	108	88	94	106
21	1440	231	335	148	208	644	280	145	106	78	91	102
22	1010	231	262	143	178	972	262	140	106	81	90	91
23	678	221	269	120	224	1550	251	138	108	82	87	87
24	959	208	241	135	1030	1170	255	135	106	80	94	84
25	721	202	217	143	2400	885	258	140	110	88	124	82
26	2050	202	262	143	1270	788	241	143	110	112	124	82
27	1310	211	248	140	1110	594	234	133	108	114	100	81
28	878	237	241	135	1090	535	224	128	104	96	93	82
29	880	355	237	90	---	489	218	124	102	90	91	81
30	959	445	187	100	---	434	208	128	100	94	87	80
31	1390	---	220	110	---	389	---	126	---	94	86	---
TOTAL	32329	11304	15592	4487	11151	29866	34009	5925	3450	2835	2867	2618
MEAN	1043	377	503	145	398	963	1134	191	115	91.5	92.5	87.3
MAX	8120	1480	1940	196	2400	5960	12600	333	143	114	124	117
MIN	162	202	187	90	100	351	208	124	100	78	81	80
CFSM	3.02	1.09	1.46	.42	1.15	2.79	3.29	.55	.33	.27	.27	.25
IN.	3.49	1.22	1.68	.48	1.20	3.22	3.67	.64	.37	.31	.31	.28

CAL YR 1976 TOTAL 153817 MEAN 420 MAX 8120 MIN 83 CFSM 1.22 IN 16.59
WTR YR 1977 TOTAL 156413 MEAN 429 MAX 12600 MIN 78 CFSM 1.24 IN 16.87

02011950 JOHNSON SPRING NEAR HOT SPRINGS, VA

LOCATION.--Lat 37°54'56", long 79°58'22", Alleghany County, Hydrologic Unit 02080201, on right bank at upstream end of culvert on State Highway 638, 90 ft (27 m) upstream from Jackson River, 0.5 mi (0.8 km) upstream from Board Tree Run, 3.7 mi (6.0 km) downstream from Gathright Dam, and 9.6 mi (15.4 km) southwest of Hot Springs.

PERIOD OF RECORD.--October 1976 to September 1977.

GAGE.--Water-stage recorder. Altitude of gage is 1,390 ft (424 m), from topographic map.

REMARKS.--Records fair prior to May 1977 and good thereafter. Records do not include diversion by two Ram pumps of an average of about 0.4 ft^3/s (0.01 m^3/s) for private water supplies. Several observations of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 4.0 ft^3/s (0.11 m^3/s) Apr. 5; minimum discharge, 0.30 ft^3/s (0.008 m^3/s) July 3, gage height, 0.20 ft (0.061 m), result of pumpage by contractor of Gathright Dam; minimum daily, 0.38 ft^3/s (0.011 m^3/s) Sept. 18, 25, 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	1.7	1.3	.80	.60	1.6	1.8	1.4	.57	.50	.45	.43
2	1.6	1.7	1.4	.72	.60	1.6	1.8	1.2	.57	.52	.44	.43
3	1.6	1.7	1.4	.68	.60	1.6	1.7	1.2	.57	.49	.49	.47
4	1.5	1.6	1.4	.68	.62	1.6	2.5	1.1	.61	.48	.42	.45
5	1.4	1.6	1.4	.68	.62	1.6	4.0	1.1	.63	.47	.43	.43
6	1.4	1.6	1.4	.68	.60	1.6	3.0	1.1	.64	.47	.45	.42
7	1.5	1.6	1.5	.70	.58	1.6	2.3	1.2	.64	.47	.45	.41
8	2.5	1.5	1.6	.70	.58	1.6	2.2	1.1	.63	.44	.45	.42
9	3.5	1.5	1.6	.68	.58	1.6	2.2	.85	.66	.46	.47	.44
10	2.2	1.5	1.6	.65	.60	1.6	2.2	.85	.64	.46	.49	.43
11	1.9	1.3	1.6	.65	.64	1.6	2.2	.85	.64	.51	.49	.41
12	1.7	1.0	1.7	.63	.70	1.5	2.2	.82	.64	.56	.49	.41
13	1.6	.90	1.7	.59	.90	3.0	2.2	.82	.65	.51	.48	.41
14	1.6	.85	1.7	.59	1.1	1.8	2.2	.81	.70	.50	.47	.41
15	1.5	.85	1.7	.59	1.2	1.7	2.2	.78	.72	.49	.48	.41
16	1.5	.82	1.7	.61	1.2	1.7	2.2	.76	.67	.48	.51	.41
17	1.4	.82	1.7	.63	1.3	1.7	2.3	.74	.65	.48	.53	.39
18	1.4	.90	1.7	.64	1.3	1.8	2.4	.71	.67	.51	.56	.38
19	1.3	.99	1.7	.64	1.2	1.8	2.4	.69	.58	.51	.55	.39
20	1.3	1.0	1.7	.64	1.0	1.8	2.4	.66	.55	.51	.54	.43
21	1.2	1.1	1.6	.64	.93	1.8	2.3	.64	.55	.51	.52	.42
22	1.3	1.1	1.6	.62	.82	1.8	2.2	.63	.54	.51	.51	.41
23	1.4	1.0	1.6	.60	.80	1.8	2.2	.63	.55	.49	.51	.41
24	1.5	.99	1.6	.60	.90	1.8	2.2	.62	.56	.47	.65	.40
25	1.6	.93	1.4	.62	1.2	1.8	2.2	.61	.58	.45	.77	.38
26	1.8	.90	1.3	.62	1.4	1.8	2.0	.69	.61	.45	.70	.38
27	1.7	.88	1.0	.62	1.5	1.8	1.9	.66	.56	.44	.58	.39
28	1.7	.96	.96	.62	1.6	1.8	1.9	.61	.54	.46	.54	.39
29	1.7	1.3	.88	.60	---	1.8	1.8	.60	.55	.45	.53	.39
30	1.7	1.3	.85	.60	---	1.8	1.6	.58	.52	.43	.48	.39
31	1.7	---	.82	.60	---	1.8	---	.57	---	.44	.43	---
TOTAL	51.3	35.89	45.11	19.92	25.67	54.2	66.7	25.58	18.19	14.92	15.86	12.34
MEAN	1.65	1.20	1.46	.64	.92	1.75	2.22	.83	.61	.48	.51	.41
MAX	3.5	1.7	1.7	.80	1.6	3.0	4.0	1.4	.72	.56	.77	.47
MIN	1.2	.82	.82	.59	.58	1.5	1.6	.57	.52	.43	.42	.38

WTR YR 1977 TOTAL 385.68 MEAN 1.06 MAX 4.0 MIN .38

02012500 JACKSON RIVER AT FALLING SPRING, VA

LOCATION.--Lat 37°52'36", long 79°58'39", Alleghany County, Hydrologic Unit 02080201, on right bank 20 ft (6 m) upstream from Smith Bridge, 0.8 mi (1.3 km) south of town of Falling Spring, 1.6 mi (2.6 km) downstream from Falling Spring Creek, and 5.5 mi (8.8 km) north of Covington.

DRAINAGE AREA.--411 mi^2 (1,064 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1925 to current year. Prior to October 1934, published as "at Barber."

REVISED RECORDS.--WSP 952: 1927, 1928(M), 1929-30, 1932-40. WSP 1303: 1926(M), 1930-34(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,333.49 ft (406.448 m) above mean sea level (levels by Corps of Engineers). Prior to Oct. 26, 1934, nonrecording gage at same site and datum.

REMARKS.--Records good. Some regulation at high flow since October 1973 by Gathright Dam (under construction), 7.6 mi (12.2 km) upstream from station.

AVERAGE DISCHARGE.--52 years, 486 ft^3/s (13.76 m^3/s), 16.06 in/yr (408 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,700 ft^3/s (700 m^3/s) Mar. 17, 1936, gage height, 14.74 ft (4.493 m), from rating curve extended above 17,000 ft^3/s (480 m^3/s) on basis of records for other stations in James River basin; minimum, 36 ft^3/s (1.02 m^3/s) Oct. 12, 1946, gage height, 2.65 ft (0.808 m), due to regulation from unknown source; minimum daily, 52 ft^3/s (1.47 m^3/s) Sept. 8, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of about 20 ft (6.1 m), discharge, about 50,000 ft^3/s (1,400 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,800 ft^3/s (391 m^3/s) Apr. 5, gage height, 12.15 ft (3.703 m); minimum, 74 ft^3/s (2.10 m^3/s) Sept. 1, gage height, 3.06 ft (0.933 m), due to regulation from unknown source; minimum daily, 79 ft^3/s (2.24 m^3/s) July 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	338	1590	429	140	120	936	386	228	142	115	91	86
2	322	1120	424	150	125	717	360	220	137	110	86	84
3	402	884	369	170	125	565	362	220	131	105	83	86
4	374	743	318	190	130	502	1540	235	123	105	92	84
5	272	611	300	199	140	772	13100	279	118	100	88	80
6	219	512	274	191	120	818	7270	355	123	100	84	90
7	192	441	1850	188	110	701	2120	341	123	96	86	98
8	1010	395	2070	156	115	594	1510	334	120	92	84	138
9	8140	357	1290	170	120	506	1150	312	126	90	84	122
10	5470	334	951	180	127	446	941	290	133	90	81	110
11	1600	321	804	140	147	403	806	268	129	101	83	98
12	995	308	787	120	180	377	685	249	125	115	87	90
13	717	285	795	150	272	5660	597	232	122	120	103	86
14	548	262	690	170	359	3770	543	217	131	114	111	82
15	438	255	624	180	377	1800	502	209	150	97	106	80
16	367	260	582	170	321	1270	454	196	144	90	99	82
17	332	257	530	110	280	974	412	183	132	88	103	84
18	314	252	462	130	263	853	382	172	127	87	117	82
19	275	254	399	140	260	850	364	166	123	83	115	84
20	452	254	372	160	242	790	351	161	118	81	103	129
21	1510	253	368	155	221	776	325	154	116	80	98	116
22	1130	252	299	150	182	1030	306	148	121	79	95	104
23	789	242	291	130	223	1660	293	144	119	84	91	96
24	620	226	279	140	848	1300	294	142	119	80	117	92
25	804	217	250	150	2360	1020	297	148	130	93	138	90
26	2310	217	272	150	1350	834	282	154	140	119	142	92
27	1530	227	269	145	1200	693	269	145	135	127	114	88
28	1050	251	256	140	1220	605	260	137	130	105	104	88
29	803	391	259	100	---	550	252	133	120	94	96	88
30	654	496	218	110	---	482	242	138	120	100	92	86
31	1350	---	239	120	---	431	---	135	---	102	90	---
TOTAL	35327	12467	17320	4694	11537	32685	36655	6445	3827	3042	3063	2815
MEAN	1140	416	559	151	412	1054	1222	208	128	98.1	98.8	93.8
MAX	8140	1590	2070	199	2360	5660	13100	355	150	127	142	138
MIN	192	217	218	100	110	377	242	133	116	79	81	80
CFSM	2.77	1.01	1.36	.37	1.00	2.56	2.97	.51	.31	.24	.24	.23
IN.	3.20	1.13	1.57	.42	1.04	2.96	3.32	.58	.35	.28	.28	.25

CAL YR 1976 TOTAL 174436 MEAN 477 MAX 8140 MIN 82 CFSM 1.16 IN 15.79
WTR YR 1977 TOTAL 169877 MEAN 465 MAX 13100 MIN 79 CFSM 1.13 IN 15.38

02012500 JACKSON RIVER AT FALLING SPRING, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1930, 1948, 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1968 to current year.
WATER TEMPERATURES: December 1968 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 500 micromhos Oct. 2, 1970; minimum, 70 micromhos Apr. 5, 1977.
WATER TEMPERATURES: Maximum, 29.5°C Aug. 2, 5, 1975; minimum, 0.0°C on several days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 277 micromhos Sept. 30; minimum, 70 micromhos Apr. 5.
WATER TEMPERATURES: Maximum, 30.0°C July 18; minimum, 1.0°C Jan. 1, 2, 16.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
OCT 15...	1830	411	170	0	83	19	27	3.7	1.8	1.4	78	15
NOV 15...	1915	257	185	5	91	25	30	4.0	1.9	1.5	81	18
DEC 15...	1810	620	135	0	64	18	20	3.5	1.9	1.1	56	11
JAN 15...	1815	180	210	0	100	28	33	5.2	2.0	1.9	92	26
FEB 15...	2215	375	160	0	78	22	25	3.8	2.0	1.6	68	16
MAR 15...	1815	1600	110	100	49	14	16	2.1	1.5	1.2	42	8.5
APR 15...	1830	490	158	10	78	18	26	3.1	1.5	1.3	73	12
MAY 15...	2030	206	185	5	92	22	30	4.2	1.8	1.6	85	19
JUN 15...	1830	155	223	0	110	33	37	5.3	2.0	1.9	99	25
JUL 15...	2030	94	245	0	130	46	41	6.3	2.3	2.5	100	35
AUG 15...	2045	104	242	0	140	46	44	6.4	2.3	2.5	110	35
SEP 15...	1830	80	262	4	130	38	40	6.9	2.4	2.3	110	37

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED NITRATE (N) (MG/L)	DISSOLVED NITRATE (NO3) (MG/L)	DISSOLVED NITRITE (N) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO PHOSPHATE (PO4) (MG/L)	DISSOLVED IRON (FE) (UG/L)
OCT 15...	1.9	.1	6.2	102	97	.35	1.5	.01	.36	.00	.00	0
NOV 15...	1.9	.1	4.4	103	102	.13	.60	.00	.13	.00	.00	10
DEC 15...	1.1	.0	5.0	81	72	.21	.90	.00	.21	.00	.00	10
JAN 15...	1.7	.1	4.8	133	121	.11	.50	.00	.11	.00	.00	10
FEB 15...	3.4	.1	4.0	108	90	.19	.80	.01	.20	.00	.00	10
MAR 15...	2.6	.0	5.1	74	60	.46	2.0	.00	.46	.00	.00	20
APR 15...	2.4	.0	4.4	95	88	.21	.90	.00	.21	.00	.00	10
MAY 15...	2.4	.1	3.3	115	105	.11	.50	.00	.11	.00	.00	0
JUN 15...	2.1	.1	6.4	132	132	.68	3.0	.00	.68	.00	.00	10
JUL 15...	2.4	.1	7.9	159	147	.11	.50	.00	.11	.00	.00	40
AUG 15...	2.7	.1	7.3	150	155	.07	.30	.01	.08	.00	.00	20
SEP 15...	3.1	.1	6.7	167	153	.05	.20	.01	.06	.00	.00	10

02012500 JACKSON RIVER AT FALLING SPRING, VA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	190	103	150	198	240	110	158	145	220	238	247	248
2	170	90	145	200	183	120	162	190	222	240	255	242
3	148	95	153	200	238	130	160	176	230	238	249	261
4	140	130	160	198	215	125	98	192	235	240	245	262
5	142	110	165	200	195	120	70	184	237	243	255	260
6	145	145	170	200	175	115	110	162	228	245	256	261
7	155	153	140	200	208	120	118	158	238	240	255	261
8	122	120	98	210	177	125	120	159	239	240	256	250
9	85	160	110	210	180	135	130	160	231	245	256	246
10	100	163	120	216	175	140	138	160	228	244	257	240
11	120	140	130	219	222	143	140	164	230	242	258	248
12	118	130	133	220	190	148	148	173	223	244	255	257
13	130	170	134	220	155	135	150	178	225	245	255	260
14	158	175	135	215	157	115	152	180	225	245	252	262
15	170	185	135	210	160	110	158	185	223	245	242	263
16	160	175	135	165	160	105	162	190	220	244	245	263
17	175	140	133	235	155	120	150	197	218	243	248	260
18	178	140	150	195	162	135	165	200	220	245	252	258
19	148	170	158	237	168	131	158	205	232	258	237	267
20	170	163	144	225	170	132	170	207	235	245	240	275
21	110	175	130	205	170	132	175	211	230	260	244	258
22	80	175	158	180	175	115	178	215	230	258	246	262
23	130	177	178	215	180	100	180	218	235	260	247	262
24	140	180	180	215	154	110	180	220	232	260	240	261
25	138	160	180	177	90	118	180	219	232	258	242	261
26	100	150	180	203	100	125	182	220	235	255	233	263
27	85	142	162	220	105	131	190	215	230	230	230	271
28	120	180	185	220	100	140	185	222	235	241	234	272
29	133	160	185	219	---	142	187	230	238	242	240	270
30	120	140	193	230	---	145	185	225	240	242	240	277
31	110	---	195	242	---	155	---	225	---	245	246	---
MEAN	135	150	152	210	170	127	155	193	230	246	247	260

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	10.0	3.5	1.0	3.0	6.5	14.0	18.0	23.5	24.5	25.0	26.0
2	17.5	12.0	4.5	1.0	3.0	8.0	15.5	18.0	22.0	24.0	25.5	26.0
3	18.0	10.5	5.0	3.0	3.5	8.0	16.0	19.0	23.0	25.0	25.0	26.0
4	18.5	10.0	6.0	3.5	3.5	9.0	11.0	19.0	23.0	26.0	25.5	26.5
5	18.0	8.5	8.0	3.5	3.0	10.0	10.0	19.0	22.0	27.0	26.0	26.5
6	18.5	8.0	6.5	4.0	3.0	10.5	8.5	20.0	22.5	27.5	26.0	25.0
7	18.5	9.0	6.0	5.0	3.0	10.0	11.0	19.5	19.0	27.5	27.0	23.5
8	18.5	8.5	6.5	5.0	3.0	11.0	12.0	19.0	19.0	29.0	27.0	22.0
9	15.0	7.0	5.5	4.5	3.5	11.0	12.0	16.5	18.0	29.0	27.0	22.0
10	14.0	8.0	6.0	4.0	4.0	12.0	12.5	16.0	19.0	29.0	28.0	23.0
11	14.0	8.0	7.0	3.0	3.5	12.0	14.0	17.0	20.0	29.0	26.0	22.0
12	15.5	8.0	8.0	2.0	4.0	13.0	15.0	18.0	22.0	29.0	26.0	21.0
13	15.5	8.0	7.0	3.0	5.0	12.0	16.0	18.5	24.5	28.5	23.0	22.0
14	15.5	6.5	7.0	4.0	7.0	12.0	17.0	20.5	21.5	28.5	24.0	21.5
15	14.5	7.0	5.5	5.0	4.0	12.5	17.0	20.0	24.0	29.0	25.0	23.0
16	13.5	7.0	6.0	1.0	4.0	14.0	18.0	22.0	25.0	28.5	27.0	22.0
17	12.5	6.5	7.5	1.5	4.0	13.0	17.0	23.5	25.0	28.0	25.0	22.0
18	12.0	8.0	7.5	1.5	2.5	12.5	20.0	23.0	25.0	30.0	23.0	22.0
19	12.5	9.0	7.5	2.0	2.5	11.5	19.0	23.0	25.5	29.0	24.0	22.0
20	12.5	9.0	6.0	2.5	5.0	12.0	18.0	23.0	24.0	29.5	23.5	22.5
21	11.0	8.5	4.5	2.5	5.5	10.0	19.0	23.0	23.0	27.0	24.0	19.5
22	11.0	8.5	4.0	3.0	5.5	9.0	19.0	23.0	21.0	27.0	24.0	20.0
23	10.0	7.0	3.5	3.0	6.0	8.5	19.0	23.0	21.0	27.0	23.5	21.5
24	11.0	6.0	4.0	3.5	7.0	9.0	17.0	24.0	20.0	25.5	23.0	23.0
25	12.0	7.0	4.0	3.0	8.0	10.5	16.0	22.0	22.0	26.0	23.0	21.0
26	12.0	8.0	3.5	3.0	8.5	10.5	15.5	22.0	23.5	24.0	22.5	21.0
27	11.5	9.0	4.0	5.0	9.0	12.0	16.5	22.5	25.0	22.0	24.5	20.0
28	10.5	9.0	5.0	4.5	8.5	13.0	16.5	23.0	26.0	23.0	26.0	19.0
29	9.5	8.0	6.0	3.0	---	15.5	18.0	23.5	26.0	23.0	26.5	19.5
30	9.5	5.0	3.5	2.5	---	15.5	16.5	23.0	26.0	26.0	26.0	19.5
31	9.5	---	4.5	2.0	---	15.0	---	23.5	---	25.5	26.0	---
MEAN	14.0	8.0	5.5	3.0	4.5	11.5	15.5	21.0	22.5	27.0	25.0	22.5

02013000 DUNLAP CREEK NEAR COVINGTON, VA

LOCATION.--Lat 37°48'10", long 80°02'50", Alleghany County, Hydrologic Unit 02080201, on right bank 20 ft (6 m) downstream from bridge on U.S. Highway 60, 2.2 mi (3.5 km) downstream from Ogle Creek, and 3.0 mi (4.8 km) west of Covington.

DRAINAGE AREA.--164 mi^2 (425 km^2).

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1929-30, 1932-34, 1942. WSP 1303: 1929-35(M), 1937-38(M), 1941-48(M). WSP 2104: Drainage area. WDR VA-74: 1969(M), 1972, 1973(P).

GAGE.--Water-stage recorder. Datum of gage is 1,294.70 ft (394.625 m) above mean sea level. Prior to Dec. 8, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good. Occasional diurnal fluctuation caused by dam 7.9 mi (12.7 km) above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--49 years, 163 ft^3/s (4.616 m^3/s), 13.50 in/yr (343 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,400 ft^3/s (776 m^3/s) June 21, 1972, gage height, 15.65 ft (4.770 m), from rating curve extended above 4,500 ft^3/s (130 m^3/s) on basis of step-backwater computations and contracted-opening measurement at gage height 15.65 ft (4.770 m); minimum, 2.0 ft^3/s (0.057 m^3/s) July 4, 1970; minimum daily, 7.0 ft^3/s (0.20 m^3/s) Sept. 9, 1966; minimum gage height, 0.69 ft (0.210 m) June 6, July 14, 1969.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 18 ft (5.5 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft^3/s (57 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 9	1230	3590	102	6.95	2.118	Mar. 13	1330	3020	85.5	6.38	1.945
Oct. 26	0430	3520	99.7	6.88	2.097	Apr. 5	0230	*11700	331	11.74	3.578

Minimum discharge, 4.7 ft^3/s (0.13 m^3/s) July 23, gage height, 1.19 ft (0.363 m); minimum daily, 15 ft^3/s (0.42 m^3/s) Aug. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	242	155	45	40	280	135	71	31	31	18	19
2	38	208	143	50	38	219	128	67	31	29	17	23
3	43	182	121	60	36	179	136	66	29	27	17	27
4	40	163	104	65	36	168	2390	69	28	26	17	26
5	32	140	94	63	38	173	7100	74	27	24	16	27
6	28	120	84	60	56	161	1500	76	29	24	16	24
7	29	106	1050	58	41	155	786	74	28	23	15	27
8	216	96	792	50	34	143	488	69	28	22	16	43
9	2450	88	414	52	33	129	351	64	31	20	19	33
10	771	84	288	54	34	119	284	60	31	24	18	29
11	283	79	250	45	45	111	240	56	30	31	22	26
12	174	81	263	35	70	107	205	52	27	33	22	23
13	129	74	305	45	150	1950	184	48	27	29	23	23
14	102	67	270	55	208	1020	169	47	39	26	23	21
15	86	68	238	56	190	534	157	44	39	23	23	20
16	74	70	212	54	162	369	140	43	35	22	20	20
17	76	70	184	34	127	280	129	41	31	21	23	23
18	80	73	157	40	112	257	120	40	29	20	27	23
19	64	77	133	45	108	249	118	41	27	19	24	24
20	165	83	127	48	96	280	116	39	27	19	23	64
21	433	87	127	48	77	330	106	36	26	19	22	43
22	267	87	105	47	61	411	100	35	26	19	20	33
23	177	80	103	41	79	478	96	34	31	17	20	29
24	144	71	91	44	604	374	98	33	34	17	44	27
25	464	69	85	45	868	300	96	37	39	22	45	24
26	2170	65	94	45	447	254	90	45	47	21	33	25
27	596	67	87	45	386	219	86	40	42	19	27	27
28	323	70	85	44	364	198	80	35	39	18	24	27
29	225	111	85	32	---	182	84	33	37	18	23	24
30	183	175	72	34	---	166	76	32	33	21	21	23
31	226	---	78	38	---	150	---	32	---	19	20	---
TOTAL	10140	3053	6396	1477	4540	9945	15708	1533	958	703	698	827
MEAN	327	102	206	47.6	162	321	524	49.5	31.9	22.7	22.5	27.6
MAX	2450	242	1050	65	868	1950	7100	76	47	33	45	64
MIN	28	65	72	32	33	107	76	32	26	17	15	19
CFSM	1.99	.62	1.26	.29	.99	1.96	3.20	.30	.20	.14	.14	.17
IN.	2.30	.69	1.45	.34	1.03	2.26	3.56	.35	.22	.16	.16	.19

CAL YR 1976 TOTAL 54641 MEAN 149 MAX 2450 MIN 13 CFSM .91 IN 12.39
WTR YR 1977 TOTAL 55978 MEAN 153 MAX 7100 MIN 15 CFSM .93 IN 12.70

02013100 JACKSON RIVER BELOW DUNLAP CREEK, AT COVINGTON, VA

LOCATION.--Lat 37°47'19", long 80°00'03", Covington City, Hydrologic Unit 02080201, on left bank in city recreation park, 0.5 mi (0.8 km) downstream from Dunlap Creek.

DRAINAGE AREA.--614 mi² (1,590 km²).

PERIOD OF RECORD.--October 1974 to current year.

REVISED RECORDS.--WDR VA-76-1: 1975(M).

GAGE.--Water-stage recorder. Datum of gage is 1,206.50 ft (367.741 m) above mean sea level.

REMARKS.--Records good. Small diurnal fluctuation at low flow caused by Westvaco plant 0.8 mi (1.3 km) upstream from station and occasionally by dam on Dunlap Creek 12.7 mi (20.4 km) upstream from station. Some regulation at high flow since October 1973 by Gathright Dam (under construction) 19.9 mi (32.0 km) upstream from station. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,200 ft³/s (657 m³/s) Apr. 5, 1977, gage height, 19.85 ft (6.050 m); minimum, 88 ft³/s (2.49 m³/s) Sept. 7, 1976, Jan. 29, 1977 (result of freezeup), gage height, 4.43 ft (1.350 m); minimum daily, 101 ft³/s (2.86 m³/s) Sept. 9, 1976.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of 24.36 ft (7.425 m), discharge, about 34,000 ft³/s (960 m³/s), from floodmarks, and flood of Dec. 27, 1973, reached a stage of 22.09 ft (6.733 m), from floodmarks, discharge, about 28,000 ft³/s (790 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 23,200 ft³/s (657 m³/s) Apr. 5, gage height, 19.85 ft (6.050 m); minimum, 88 ft³/s (2.49 m³/s) Jan. 29, gage height, 4.43 ft (1.350 m), result of freezeup; minimum daily, 113 ft³/s (3.20 m³/s) Aug. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	368	2030	609	184	163	1370	530	337	201	162	131	120
2	380	1430	589	226	167	1050	489	325	198	162	122	123
3	436	1130	518	275	165	824	494	319	187	152	116	131
4	443	937	444	285	171	732	3330	344	178	143	118	132
5	324	780	412	282	185	948	18800	380	170	142	120	128
6	258	653	374	266	156	1040	9470	468	182	143	114	127
7	226	568	2760	263	145	912	3340	460	180	137	113	147
8	973	512	3320	215	153	792	2350	448	176	134	114	189
9	9340	464	1960	223	154	683	1770	424	187	134	116	188
10	7070	434	1380	248	164	606	1420	397	193	144	117	162
11	2230	418	1140	189	195	554	1190	370	192	150	116	147
12	1320	411	1120	155	245	520	1000	346	182	187	125	135
13	901	380	1190	192	405	6200	871	322	178	177	133	131
14	687	345	1050	237	592	5560	791	304	211	180	144	126
15	554	330	928	249	633	2650	734	292	222	159	140	128
16	469	338	856	237	551	1840	662	278	219	146	132	128
17	428	336	766	144	438	1370	602	262	197	136	139	133
18	403	331	663	169	393	1170	561	251	186	135	151	130
19	352	336	569	191	390	1170	540	248	177	129	147	138
20	536	342	526	210	382	1120	531	241	172	123	138	193
21	2030	346	525	210	347	1170	492	229	165	121	132	189
22	1580	342	430	202	285	1400	462	221	167	117	130	169
23	1030	329	407	177	326	2330	441	216	183	120	128	147
24	796	303	387	190	1080	1830	440	209	181	119	174	143
25	1130	292	338	195	3540	1420	443	225	192	130	203	138
26	4650	290	372	199	2060	1140	423	240	204	145	189	142
27	2420	295	380	198	1730	940	402	224	192	161	159	144
28	1530	319	351	187	1780	814	386	206	186	150	143	139
29	1110	471	358	139	---	744	379	199	175	136	133	139
30	883	604	281	146	---	659	360	199	174	143	132	133
31	1500	---	323	164	---	589	---	200	---	140	124	---
TOTAL	46357	16176	25326	6447	16995	44147	53703	9186	5607	4457	4193	4319
MEAN	1495	539	817	208	607	1424	1790	296	187	144	135	144
MAX	9340	2030	3320	285	3540	6200	18800	468	222	187	203	193
MIN	226	290	281	139	145	520	350	199	165	117	113	120
CFSM	2.44	.88	1.33	.34	.99	2.32	2.92	.48	.31	.24	.22	.24
IN.	2.81	.98	1.53	.39	1.03	2.67	3.25	.56	.34	.27	.25	.26

CAL YR 1976 TOTAL 236701 MEAN 647 MAX 9340 MIN 101 CFSM 1.05 IN 14.34
WTR YR 1977 TOTAL 236913 MEAN 649 MAX 18800 MIN 113 CFSM 1.06 IN 14.35

02014000 POTTS CREEK NEAR COVINGTON, VA

LOCATION.--Lat 37°43'44", long 80°02'33", Alleghany County, Hydrologic Unit 02080201, on left bank at downstream side of bridge on State Highway 18, 0.8 mi (1.3 km) downstream from Blue Spring Creek, and 5.2 mi (8.4 km) southwest of Covington.

DRAINAGE AREA.--153 mi² (396 km²).

PERIOD OF RECORD.--October 1928 to September 1956, October 1965 to current year.

REVISED RECORDS.--WSP 1723: 1935, 1936(M), 1940(M), 1942(M), 1948-49(M), 1951-52(M), 1954(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,273.93 ft (388.294 m) above mean sea level. Prior to Sept. 30, 1956, nonrecording gage at site 1.3 mi (2.1 km) downstream at different datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--40 years, 176 ft³/s (4.984 m³/s), 15.62 in/yr (397 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,400 ft³/s (351 m³/s) June 21, 1972, gage height, 12.33 ft (3.758 m); minimum observed, 13 ft³/s (0.37 m³/s) Nov. 29, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,400 ft³/s (68 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	0900	3150	89.2	7.23	2.204	Apr. 5	1130	*5570	158	9.08	2.768

Minimum discharge, 14 ft³/s (0.40 m³/s) Aug. 5, gage height, 2.50 ft (0.762 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	164	335	161	69	60	298	174	88	47	48	24	27
2	93	278	170	74	57	261	161	86	45	45	23	34
3	101	247	145	88	55	225	154	81	43	39	24	72
4	72	225	127	98	53	209	1310	86	41	36	23	39
5	57	193	118	93	60	238	4440	90	39	33	21	33
6	51	170	107	47	55	231	1640	90	39	31	21	31
7	53	151	758	85	55	215	870	86	41	30	24	38
8	268	136	688	67	46	196	580	77	39	28	28	105
9	2260	127	444	71	42	177	430	72	41	27	31	62
10	770	121	346	76	46	166	354	70	41	27	38	48
11	334	112	312	64	57	151	302	70	39	28	43	39
12	224	115	305	56	80	145	258	68	38	38	31	34
13	170	104	292	59	151	1200	234	66	36	47	31	31
14	134	98	254	66	212	445	212	62	41	38	30	30
15	112	96	241	78	215	580	193	60	43	30	30	28
16	98	96	236	80	180	436	174	58	41	27	30	28
17	101	99	218	64	156	362	161	56	39	26	28	33
18	112	94	190	63	134	327	148	56	39	24	30	31
19	98	96	167	66	133	320	145	54	38	23	31	34
20	220	98	164	74	136	339	158	52	34	23	30	47
21	406	96	170	80	115	354	134	50	33	23	26	34
22	248	94	133	77	93	331	123	47	34	23	24	31
23	224	90	142	75	127	335	115	47	45	23	26	30
24	199	87	118	89	309	312	115	45	47	23	34	28
25	324	85	110	89	744	292	112	60	62	26	33	28
26	1450	85	134	76	457	271	105	70	68	27	31	33
27	670	85	121	69	378	267	102	58	54	27	30	34
28	414	93	118	66	346	231	95	50	52	27	27	33
29	320	154	114	69	---	218	100	47	58	26	27	31
30	266	193	85	58	---	199	100	48	52	26	27	31
31	377	---	112	56	---	186	---	47	---	26	27	---
TOTAL	10390	4052	6811	2242	4560	9993	13199	1995	1309	925	883	1136
MEAN	335	135	220	72.3	163	322	440	64.4	43.6	29.8	28.5	37.9
MAX	2260	335	758	98	744	1200	4440	90	68	48	43	105
MIN	51	85	85	56	42	145	95	45	33	23	21	27
CFSM	2.14	.88	1.44	.47	1.07	2.11	2.88	.42	.29	.20	.19	.25
IN.	2.53	.99	1.66	.55	1.11	2.43	3.21	.49	.32	.22	.21	.28

CAL YR 1976 TOTAL 63545 MEAN 174 MAX 2260 MIN 21 CFSM 1.14 IN 15.46
WTR YR 1977 TOTAL 57645 MEAN 158 MAX 4440 MIN 21 CFSM 1.03 IN 13.98

02015700 BULLPASTURE RIVER AT WILLIAMSVILLE, VA

LOCATION.--Lat 38°11'43", long 79°34'14", Bath County, Hydrologic Unit 02080201, on left bank 15 ft (5 m) downstream from bridge on State Highway 614 at Williamsville and 0.62 mi (1.00 km) upstream from mouth.

DRAINAGE AREA.--110 mi² (285 km²).

PERIOD OF RECORD.--August 1960 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,610.14 ft (490.771 m) above mean sea level. Prior to July 12, 1974, at site 700 ft (213 m) upstream at datum 11.84 ft (3.609 m) higher.

REMARKS.--Records good except those for January, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--17 years, 141 ft³/s (3.993 m³/s), 17.41 in/yr (442 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,430 ft³/s (267 m³/s) Apr. 5, 1977, from rating curve extended above 3,300 ft³/s (93 m³/s); maximum gage height, 10.84 ft (3.304 m) Dec. 26, 1973, from floodmarks; minimum discharge, 21 ft³/s (0.59 m³/s) Dec. 8, 1965.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft³/s (57 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1130	5540	157	7.84	2.390	Apr. 5	0400	*9430	267	9.25	2.819
Mar. 13	0830	4900	139	7.48	2.280						

Minimum daily discharge, 26 ft³/s (0.74 m³/s) Aug. 5, 6, 8, 10, 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	370	96	43	36	165	112	79	47	39	28	28
2	74	252	102	54	37	141	108	77	46	36	27	27
3	136	211	85	59	40	120	110	77	43	35	29	35
4	72	178	79	61	46	222	479	86	41	34	29	28
5	55	153	77	62	49	308	4350	106	40	34	26	27
6	48	136	72	59	40	226	1000	87	43	35	26	46
7	56	118	701	58	40	193	555	86	41	34	27	35
8	493	108	445	46	37	140	340	86	40	32	26	36
9	3150	98	267	50	40	141	279	75	46	31	28	32
10	744	100	208	56	46	130	234	72	48	40	26	31
11	314	96	190	46	62	118	206	70	41	72	27	29
12	204	90	190	40	83	116	149	69	43	48	27	28
13	169	85	172	45	106	2100	165	68	41	44	26	28
14	136	79	143	50	96	736	154	66	47	38	28	27
15	112	83	136	54	92	428	143	66	53	36	29	28
16	98	83	136	50	72	291	133	63	46	31	46	29
17	92	78	127	49	59	227	123	62	41	30	39	29
18	92	77	116	41	58	227	117	60	43	30	38	28
19	77	77	102	43	62	196	112	58	41	29	31	29
20	211	76	102	46	69	185	112	57	39	29	29	49
21	365	70	98	46	58	170	106	56	39	29	28	36
22	216	70	69	40	52	552	99	53	38	29	29	31
23	165	65	85	37	70	462	96	53	38	29	28	29
24	153	61	69	34	398	318	101	56	38	28	39	29
25	172	64	67	39	401	266	101	52	39	29	50	30
26	340	62	93	41	266	202	92	52	46	47	35	55
27	238	67	76	42	217	175	92	49	39	32	31	44
28	165	67	77	40	199	163	87	46	40	29	29	35
29	158	121	77	33	---	151	87	46	38	29	28	32
30	141	116	56	36	---	136	80	47	36	31	28	31
31	669	---	69	36	---	125	---	47	---	30	29	---
TOTAL	9157	3301	4368	1426	2803	9126	10491	2027	1253	1081	944	977
MEAN	295	110	141	46.0	100	294	350	65.4	41.8	34.9	30.5	32.6
MAX	3150	370	701	62	401	2100	4350	106	53	72	50	55
MIN	48	61	56	33	36	116	80	47	36	28	26	27
CFSM	2.68	1.00	1.28	.42	.91	2.67	3.18	.60	.38	.32	.28	.30
IN.	3.10	1.12	1.48	.48	.95	3.09	3.55	.69	.42	.37	.32	.33

CAL YR 1976 TOTAL 48126 MEAN 131 MAX 3150 MIN 31 CFSM 1.19 IN 16.27
WTR YR 1977 TOTAL 46952 MEAN 129 MAX 4350 MIN 26 CFSM 1.17 IN 15.88

02016000 COWPASTURE RIVER NEAR CLIFTON FORGE, VA

LOCATION.--Lat 37°47'30", long 79°45'35", Alleghany County, Hydrologic Unit 02080201, on left bank 100 ft (30 m) downstream from highway bridge, 2.5 mi (4.0 km) upstream from confluence with Jackson River, and 4.0 mi (6.4 km) southeast of Clifton Forge.

DRAINAGE AREA.--461 mi² (1,194 km²).

PERIOD OF RECORD.--*March 1925 to current year. Records for May 1907 to August 1908, published in WSP 242, are unreliable and should not be used.*

REVISED RECORDS.--WSP 952: 1925-41. WSP 2104: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 1,006.93 ft (306.912 m) above mean sea level (levels by Corps of Engineers). Prior to October 1934, nonrecording gage at site 100 ft (30 m) upstream at present datum.

REMARKS.--Records good except those for January and February, which are fair. Low flow affected by springs and by occasional regulation from unknown source. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--52 years, 518 ft³/s (14.67 m³/s), 15.26 in/yr (388 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,200 ft³/s (969 m³/s) Mar. 18, 1936, gage height, 18.62 ft (5.675 m), from rating curve extended above 13,000 ft³/s (370 m³/s) on basis of slope-area measurement at gage height 15.70 ft (4.785 m); minimum, 38 ft³/s (1.08 m³/s) Sept. 2, 1932; minimum daily, 40 ft³/s (1.13 m³/s) Sept. 1, 1932; minimum gage height, 1.61 ft (0.491 m) Aug. 8, Sept. 2, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 20.8 ft (6.34 m), from floodmarks, discharge, about 45,000 ft³/s (1,300 m³/s), from rating curve extended above 13,000 ft³/s (370 m³/s) on basis of records for other stations in James River basin.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,000 ft³/s (140 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 10	0400	11800	334	10.93	3.331	Mar. 14	0130	8460	240	9.24	2.816
Oct. 26	0730	5240	148	7.29	2.222	Apr. 5	2135	*15100	428	12.40	3.780

Minimum discharge, 67 ft³/s (1.90 m³/s) Aug. 8, Sept. 2, gage height, 1.61 ft (0.491 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	230	1830	437	130	110	676	376	206	120	93	81	69
2	204	1150	392	160	115	952	363	194	115	88	77	67
3	308	853	359	220	115	453	340	191	113	85	75	125
4	481	696	301	233	120	418	1480	206	110	83	73	115
5	270	572	278	204	130	729	11800	239	103	81	71	93
6	188	474	267	197	110	893	5860	242	105	81	75	77
7	149	405	2000	180	100	739	2410	221	105	81	69	88
8	686	357	3030	150	105	618	1570	207	103	79	71	207
9	8880	320	1540	150	105	520	1150	200	113	77	75	106
10	6570	296	1050	170	110	453	910	188	115	79	75	125
11	1610	284	852	140	130	406	767	178	113	127	79	103
12	887	286	832	110	170	372	645	172	113	214	73	88
13	595	273	828	130	250	3270	555	166	105	160	77	85
14	446	251	698	150	320	4900	498	160	135	137	83	77
15	349	240	604	170	312	1980	457	158	153	115	83	77
16	295	240	562	160	260	1300	421	153	137	98	83	75
17	274	239	520	100	240	961	378	148	137	88	90	79
18	258	230	456	110	240	791	351	145	118	85	113	77
19	242	226	391	130	230	796	335	143	108	81	95	77
20	479	224	361	140	212	738	343	143	103	77	85	113
21	1670	217	358	150	208	819	315	135	100	77	79	130
22	1170	212	304	140	192	951	292	132	98	77	73	118
23	749	202	282	120	167	2410	276	127	110	75	71	95
24	574	191	270	130	231	1500	270	125	108	75	98	83
25	768	183	241	130	1080	1090	267	137	113	79	113	81
26	3670	181	284	140	957	848	260	[illegible]	115	98	110	93
27	1640	184	271	140	733	687	246	137	108	95	108	108
28	1040	189	278	130	755	588	235	127	120	98	85	115
29	759	280	262	95	---	561	225	120	105	83	79	103
30	606	429	266	100	---	479	214	125	98	79	75	88
31	1530	---	253	110	---	423	---	122	---	79	71	---
TOTAL	37581	11714	18807	4519	7816	31897	33585	5093	3399	2924	2565	3007
MEAN	1212	390	607	146	279	1029	1120	164	113	94.3	82.7	100
MAX	8880	1830	3030	233	1080	4900	11800	242	153	214	113	207
MIN	149	181	241	95	100	372	214	120	98	75	69	67
CFSM	2.63	.85	1.32	.32	.61	2.23	2.43	.36	.25	.21	.18	.22
IN.	3.03	.95	1.52	.36	.63	2.57	2.71	.41	.27	.24	.21	.24

CAL YR 1976 TOTAL 183395 MEAN 501 MAX 8880 MIN 73 CFSM 1.09 IN 14.80
WTR YR 1977 TOTAL 162907 MEAN 446 MAX 11800 MIN 67 CFSM .97 IN 13.15

02016500 JAMES RIVER AT LICK RUN, VA

LOCATION.--Lat 37°46'25", long 79°47'05", Botetourt County, Hydrologic Unit 02080201, on right bank at community of Lick Run, 1,000 ft (305 m) downstream from bridge on U.S. Highway 220, 0.9 mi (1.4 km) downstream from confluence of Cowpasture and Jackson Rivers, 1.8 mi (2.9 km) south of Iron Gate, and at mile 342.3 (550.8 km).

DRAINAGE AREA.--1,373 mi² (3,556 km²).

PERIOD OF RECORD.--April 1925 to current year.

REVISED RECORDS.--WSP 852: 1936-37. WSP 972: 1927, 1930(M), 1932(M), 1935-36. WSP 1303: 1927-28(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 978.30 ft (298.186 m) above mean sea level (levels by Corps of Engineers). Prior to Oct. 26, 1928, nonrecording gage at same site and datum.

REMARKS.--Records good. National Weather Service gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--52 years, 1,591 ft³/s (45.06 m³/s), 15.74 in/yr (400 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 66,600 ft³/s (1,890 m³/s) Mar. 18, 1936; maximum gage height, 27.01 ft (8.233 m) June 21, 1972; minimum discharge, 148 ft³/s (4.19 m³/s) Sept. 7, 1966, gage height, 1.42 ft (0.433 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in November 1877 reached a stage of about 33 ft (10.1 m), discharge, about 120,000 ft³/s (3,400 m³/s). Flood in March 1913 reached a stage of 30.4 ft (9.27 m), from floodmarks, discharge, about 98,000 ft³/s (2,800 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 12,000 ft³/s (340 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	2100	27300	773	17.13	5.221	Mar. 14	0130	23000	651	15.29	4.660
Oct. 26	0930	14100	399	11.32	3.450	Apr. 5	1400	*43700	1240	22.54	6.870

Minimum daily discharge, 200 ft³/s (5.66 m³/s) Aug. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	868	4360	1360	495	370	2600	1220	729	398	349	264	238
2	746	2960	1260	585	410	2040	1130	707	394	326	250	234
3	960	2380	1180	758	421	1700	1090	690	376	313	238	318
4	1060	2000	1020	664	412	1550	5020	729	362	300	230	313
5	734	1750	925	654	440	1900	37000	800	349	286	220	277
6	565	1450	860	630	408	2300	21400	880	362	286	210	254
7	475	1260	5230	610	396	2000	7720	860	358	282	210	268
8	1540	1130	8210	500	403	1800	5100	830	349	272	200	540
9	20500	1020	4650	500	362	1550	3940	788	372	264	220	510
10	17600	998	3100	500	390	1400	3030	734	376	264	250	380
11	4790	990	2600	500	416	1260	2540	702	372	318	313	318
12	2720	908	2480	400	510	1180	2180	668	367	485	259	286
13	1900	925	2540	350	712	10500	1900	630	356	403	272	264
14	1450	860	2180	400	1090	14600	1750	595	416	367	286	264
15	1180	808	1950	540	1220	6020	1600	579	475	322	286	246
16	990	800	1850	520	1090	4080	1450	550	445	286	282	238
17	925	794	1700	450	892	3030	1310	520	460	264	286	250
18	840	770	1500	420	800	2540	1220	500	421	254	322	246
19	800	752	1310	400	800	2540	1180	500	376	250	300	246
20	1220	758	1180	450	800	2420	1310	475	356	242	290	326
21	4880	752	1180	470	752	2600	1130	455	340	238	268	380
22	3310	740	990	460	658	2660	1060	430	331	238	254	336
23	2240	718	925	450	658	5270	990	416	376	230	250	300
24	1800	685	892	450	1070	3940	958	416	380	230	308	277
25	1560	663	740	455	5680	3030	958	450	403	259	416	268
26	10000	646	860	465	3940	2680	925	495	435	280	367	246
27	5620	646	860	470	2960	2060	850	475	412	295	344	290
28	3380	648	830	460	3030	1800	830	426	421	308	300	295
29	2680	892	800	416	---	1650	800	403	380	272	272	277
30	2000	1400	685	419	---	1500	782	416	358	268	259	264
31	3170	---	729	390	---	1360	---	408	---	264	254	---
TOTAL	102463	35529	56576	15230	31092	95380	112383	18227	11572	9030	8480	8989
MEAN	3305	1184	1825	491	1110	3077	3746	588	386	291	274	300
MAX	20500	4360	8210	758	5680	14600	37000	880	475	485	416	540
MIN	475	646	685	350	362	1180	782	403	331	230	200	234
CFSM	2.41	.86	1.33	.36	.81	2.24	2.73	.43	.28	.21	.20	.22
IN.	2.78	.96	1.53	.41	.84	2.58	3.04	.49	.31	.24	.23	.24

CAL YR 1976 TOTAL 540956 MEAN 1478 MAX 21100 MIN 219 CFSM 1.08 IN 14.66
WTR YR 1977 TOTAL 504951 MEAN 1383 MAX 37000 MIN 200 CFSM 1.01 IN 13.68

02017500 JOHNS CREEK AT NEW CASTLE, VA

LOCATION.--Lat 37°30'22", long 80°06'25", Craig County, Hydrologic Unit 02080201, on right bank 20 ft (6 m) downstream from bridge on State Highway 615 at New Castle and 1,700 ft (518 m) upstream from mouth.

DRAINAGE AREA.--104 mi² (269 km²).

PERIOD OF RECORD.--April 1926 to current year.

REVISED RECORDS.--WSP 972: 1935-36(M), 1940(M). WSP 1203: 1928, 1935. WSP 1303: 1927(M), 1928, 1929-34(M), 1935. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,254.30 ft (382.311 m) above mean sea level. Prior to June 7, 1937, nonrecording gage at same site and datum.

REMARKS.--Records good except those for January and February, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--51 years, 124 ft³/s (3.512 m³/s), 16.19 in/yr (411 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,000 ft³/s (227 m³/s) Jan. 23, 1935, from rating curve extended above 3,200 ft³/s (91 m³/s) on basis of slope-area measurement of peak flow; maximum gage height, 12.48 ft (3.804 m) June 21, 1972; minimum discharge, 6.0 ft³/s (0.17 m³/s) Dec. 5, 1946, result of freezeup; minimum daily, 6.6 ft³/s (0.19 m³/s) Oct. 1, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,350 ft³/s (123 m³/s) at 0930 hours Apr. 5, gage height, 10.25 ft (3.124 m), no other peak above base of 2,100 ft³/s (59 m³/s); minimum daily, 10 ft³/s (0.28 m³/s) Sept. 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	268	122	45	40	223	97	60	30	32	14	11
2	26	200	118	58	39	198	90	58	28	28	14	12
3	26	173	106	54	39	175	90	55	26	24	13	12
4	21	152	91	56	41	170	1280	60	23	22	14	14
5	18	128	81	56	42	183	3180	71	22	20	14	12
6	16	107	76	55	40	165	1180	72	21	19	13	20
7	19	92	554	55	38	156	752	66	21	18	12	20
8	160	82	467	59	35	142	545	67	21	16	12	21
9	795	72	315	48	35	128	456	65	22	15	13	22
10	315	68	256	58	37	118	400	62	23	14	12	22
11	194	64	225	44	48	107	335	58	22	66	16	21
12	148	66	212	38	59	99	279	53	21	56	14	19
13	103	62	192	40	80	666	236	48	20	53	13	17
14	73	58	167	44	110	458	204	44	22	38	24	16
15	64	55	157	52	127	360	170	39	20	38	24	14
16	65	57	151	52	123	291	143	36	26	25	19	14
17	53	56	136	47	112	236	126	36	25	23	20	15
18	52	56	118	43	102	218	110	32	24	21	24	14
19	66	56	103	45	96	196	101	30	22	19	20	14
20	165	56	99	50	88	202	89	28	20	18	18	14
21	254	58	99	56	82	192	79	26	19	16	16	14
22	172	55	81	56	73	212	71	26	18	16	15	12
23	132	51	88	52	80	220	68	26	22	16	14	11
24	113	49	83	56	185	206	69	26	30	16	18	11
25	250	48	80	56	362	189	67	36	48	16	19	11
26	800	47	80	56	296	172	62	38	47	18	16	11
27	392	50	73	47	268	157	60	32	39	16	15	11
28	286	56	71	44	250	144	56	28	38	15	14	10
29	220	110	71	42	---	132	56	28	40	15	13	10
30	187	137	66	38	---	120	56	43	35	16	12	10
31	332	---	66	38	---	110	---	30	---	15	11	---
TOTAL	5494	2563	4578	1507	2925	6309	10520	1371	803	728	486	435
MEAN	177	85.4	148	48.6	104	204	351	44.2	26.8	23.5	15.7	14.5
MAX	800	268	554	58	362	666	3180	72	48	66	24	22
MIN	16	47	66	38	35	99	56	26	18	14	11	10
CFSM	1.70	.82	1.42	.47	1.00	1.96	3.38	.43	.26	.23	.15	.14
IN.	1.97	.92	1.64	.54	1.05	2.26	3.76	.49	.29	.26	.17	.16

CAL YR 1976 TOTAL 47727.4 MEAN 130 MAX 1830 MIN 8.8 CFSM 1.25 IN 17.07
WTR YR 1977 TOTAL 37723.0 MEAN 103 MAX 3180 MIN 10 CFSM .99 IN 13.44

02018000 CRAIG CREEK AT PARR, VA

LOCATION.--Lat 37°39'57", long 79°54'42", Botetourt County, Hydrologic Unit 02080201, on right bank 12 ft (4 m) upstream from Chesapeake and Ohio Railway bridge, 700 ft (213 m) downstream from Stony Run, 0.2 mi (0.3 km) northeast of Horton, 0.4 mi (0.6 km) northwest of Parr, and 12 mi (19 km) upstream from mouth.

DRAINAGE AREA.--329 mi² (852 km²).

PERIOD OF RECORD.--April 1925 to current year.

REVISED RECORDS.--WSP 852: 1937. WSP 892: 1935-36. WSP 1303: 1929-30(M), 1932-35(M), 1937-38(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 992.50 ft (302.514 m) above mean sea level (levels by Corps of Engineers). Prior to June 7, 1937, nonrecording gage at same site and datum.

REMARKS.--Records good except those for January, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--52 years, 378 ft³/s (10.70 m³/s), 15.60 in/yr (396 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,200 ft³/s (572 m³/s) June 21, 1972, gage height, 19.29 ft (5.880 m), from high-water mark in well; minimum daily, 25 ft³/s (0.71 m³/s) Sept. 4, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,200 ft³/s (120 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1900	5500	156	9.86	3.005	Apr. 5	2030	*9600	272	12.21	3.722

Minimum discharge, 32 ft³/s (0.91 m³/s) Aug. 7, 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	121	960	361	179	130	545	285	180	104	95	38	43
2	123	710	363	180	130	516	263	172	98	87	38	39
3	109	590	321	200	145	442	255	167	108	79	38	41
4	121	516	291	214	152	408	1270	167	92	76	38	41
5	96	431	255	190	160	442	8000	191	86	72	37	51
6	86	361	238	188	152	420	4600	205	80	66	36	49
7	80	317	1130	174	134	390	2210	191	77	65	36	44
8	409	295	1960	167	130	366	1540	178	76	60	36	48
9	3600	259	1100	160	130	336	1100	167	76	56	38	88
10	2170	262	800	170	143	309	960	148	76	53	38	66
11	800	235	706	150	152	288	816	157	76	54	39	72
12	530	232	656	134	172	270	606	150	76	116	39	65
13	380	220	652	140	196	1960	566	140	72	123	42	60
14	297	210	580	150	252	2150	519	132	76	106	44	57
15	242	196	526	160	305	1220	453	121	77	82	42	53
16	205	194	502	170	290	890	390	113	86	69	56	51
17	194	194	453	150	270	710	363	100	86	67	51	51
18	190	188	395	134	270	416	313	106	82	57	46	51
19	183	188	368	150	276	576	297	102	77	52	52	51
20	204	188	325	160	252	519	270	98	72	50	51	51
21	1460	148	321	180	230	563	255	92	66	68	45	49
22	764	183	270	170	216	543	242	87	63	66	41	48
23	561	180	266	160	205	718	229	86	71	66	41	48
24	420	170	260	160	245	676	222	82	76	66	45	49
25	442	165	240	170	995	590	219	93	82	63	40	49
26	2760	162	250	140	816	519	210	104	175	63	50	52
27	1700	142	230	170	686	653	190	113	171	62	48	52
28	995	170	245	160	658	610	188	96	199	63	45	52
29	736	210	232	150	---	375	180	88	186	61	44	51
30	596	356	226	160	---	343	185	90	166	60	41	50
31	436	---	213	130	---	317	---	121	---	59	41	---
TOTAL	21011	8677	14581	5094	7906	18943	27196	4062	2566	1951	1332	1650
MEAN	678	289	470	164	282	611	906	131	85.5	62.9	43.0	55.0
MAX	3600	960	1960	214	995	2150	8000	205	175	123	56	88
MIN	80	142	213	130	130	270	180	82	63	50	36	39
CFSM	2.06	.88	1.43	.50	.86	1.86	2.75	.40	.26	.19	.13	.17
IN.	2.38	.98	1.65	.58	.89	2.14	3.07	.46	.29	.22	.15	.19

CAL YR 1976 TOTAL 150057 MEAN 410 MAX 6760 MIN 50 CFSM 1.25 IN 16.97
WTR YR 1977 TOTAL 114969 MEAN 315 MAX 8000 MIN 36 CFSM .96 IN 13.00

02018500 CATAWBA CREEK NEAR CATAWBA, VA

LOCATION.--Lat 37°28'05", long 80°00'20", Botetourt County, Hydrologic Unit 02080201, on right bank 80 ft (24 m) upstream from highway bridge, 1.0 mi (1.6 km) downstream from Little Catawba Creek, 1.9 mi (3.1 km) west of Haymakertown, and 8.2 mi (13.2 km) northeast of Catawba.

DRAINAGE AREA.--34.3 mi² (88.8 km²).

PERIOD OF RECORD.--September 1943 to current year.

REVISED RECORDS.--WSP 1303: 1944-45(M). WSP 2104: Drainage area. WDR VA-72: 1954, 1955(P), 1957-58(P), 1959, 1960-62(P), 1963, 1964(M), 1965-67(P), 1968(M), 1969, 1970(M), 1971.

GAGE.--Water-stage recorder. Datum of gage is 1,299.96 ft (396.228 m) above mean sea level. Prior to Aug. 1, 1953, nonrecording gage at site 80 ft (24 m) downstream at same datum.

REMARKS.--Records good. At a point 5.3 mi (8.5 km) above station, there is an occasional transmountain diversion through a tunnel into Roanoke River basin for municipal water supply of city of Roanoke since December 1974. Prior to October 1976, monthly means adjusted for pumpage by Citadel Cement Corp. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--34 years, 34.8 ft³/s (0.985 m³/s), 13.78 in/yr (350 mm/yr), adjusted for pumpage from October 1952 to September 1976.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,740 ft³/s (219 m³/s) June 21, 1972, gage height, 10.35 ft (3.155 m), from rating curve extended above 1,100 ft³/s (31 m³/s) on basis of slope-area measurement of peak flow; minimum, 0.80 ft³/s (0.023 m³/s) Nov. 21, 1963; minimum daily, 0.90 ft³/s (0.025 m³/s) Nov. 22, 1963; minimum gage height, 0.54 ft (0.165 m) Sept. 7-11, 1944, site then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 13.26 ft (4.042 m), from information by observer.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 600 ft³/s (17 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	0715	921	26.1	4.43	1.350	Apr. 5	0230	*1350	38.2	4.99	1.521
Mar. 13	0545	776	22.0	4.21	1.283						

Minimum discharge, 0.82 ft³/s (0.023 m³/s) Jan. 28, 29, gage height, 1.08 ft (0.329 m), result of freezeup; minimum daily, 2.2 ft³/s (0.062 m³/s) Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.7	65	10	8.0	5.6	16	26	16	8.3	5.0	3.0	3.2
2	9.2	51	10	14	5.6	15	26	16	7.1	5.0	2.9	3.9
3	10	44	10	11	5.6	14	23	15	6.8	4.6	2.9	8.0
4	8.0	37	10	11	5.8	16	392	17	6.2	4.6	2.9	4.7
5	7.2	32	9.7	10	6.4	14	803	17	6.0	4.6	2.7	4.3
6	6.1	28	9.7	10	5.6	14	216	15	6.0	4.5	2.5	3.5
7	8.8	26	93	10	5.0	13	129	14	5.9	3.6	2.4	4.4
8	37	23	96	7.5	5.0	13	98	13	5.6	3.4	2.3	10
9	430	17	66	8.0	5.0	13	79	12	6.7	3.3	2.8	7.5
10	47	11	54	9.6	5.4	12	66	12	6.5	3.4	4.2	5.4
11	19	10	53	6.6	6.5	12	57	12	5.8	4.6	3.0	4.1
12	14	12	62	5.0	6.0	13	50	11	6.1	8.1	3.0	3.2
13	13	10	58	6.0	9.5	312	45	11	6.1	6.4	8.2	3.0
14	11	9.7	49	8.0	9.5	133	41	10	7.7	4.8	2.7	2.9
15	11	9.7	44	8.5	9.3	85	37	10	7.3	4.2	4.0	2.6
16	9.7	9.7	42	7.8	8.8	69	36	9.8	6.1	4.0	4.5	3.5
17	11	9.7	37	5.8	7.6	53	32	9.4	6.5	3.8	7.2	3.6
18	9.7	9.7	32	5.8	8.1	47	30	8.8	6.1	3.5	4.7	3.1
19	8.8	9.7	29	6.6	8.0	40	29	8.2	5.5	2.8	4.4	2.7
20	21	9.2	29	7.2	8.8	42	27	8.3	5.2	2.8	3.8	2.9
21	21	9.2	29	7.2	8.7	36	25	8.1	4.9	2.6	3.8	2.6
22	16	9.2	26	6.6	8.1	56	26	8.0	4.9	2.8	4.5	2.4
23	13	8.8	24	5.9	8.9	63	23	7.9	6.9	3.3	4.0	2.4
24	12	8.8	21	6.2	17	53	23	7.9	8.6	3.1	7.1	2.3
25	45	8.8	21	6.6	19	46	21	11	10	3.8	4.7	2.4
26	195	8.8	21	6.4	17	41	20	8.9	7.7	4.4	4.0	3.1
27	96	9.2	20	6.4	18	37	19	8.5	6.3	3.5	4.2	2.5
28	65	9.2	20	5.4	17	34	18	7.7	7.4	3.3	3.8	2.4
29	49	11	21	4.5	---	32	18	7.6	7.0	3.3	3.6	2.2
30	43	11	13	5.0	---	29	17	7.6	5.8	3.7	3.4	2.2
31	53	---	9.7	5.4	---	27	---	7.6	---	3.3	3.1	---
TOTAL	1309.2	527.6	1029.1	231.3	252.2	1400	2445	335.9	197.0	124.1	132.9	113.0
MEAN	42.2	17.6	33.2	7.46	9.01	45.2	81.5	10.8	6.57	4.00	4.29	3.77
MAX	430	65	96	14	19	312	803	17	10	8.1	8.2	10
MIN	6.1	8.8	9.7	4.5	5.0	12	17	7.6	4.9	2.6	2.3	2.2
CFSM	1.23	.51	.97	.22	.26	1.32	2.38	.32	.19	.12	.13	.11
IN.	1.42	.57	1.12	.25	.27	1.52	2.65	.36	.21	.13	.14	.12

CAL YR 1976 TOTAL 8850.1 MEAN 24.2 MAX 430 MIN 3.1 CFSM .71 IN 9.61
WTR YR 1977 TOTAL 8097.1 MEAN 22.2 MAX 803 MIN 2.2 CFSM .65 IN 8.78

02019500 JAMES RIVER AT BUCHANAN, VA

LOCATION.--Lat 37°31'50", long 79°40'45", Botetourt County, Hydrologic Unit 02080201, on left bank at Chesapeake and Ohio Railway station at Buchanan, 300 ft (91 m) upstream from bridge on U.S. Highway 11, 1,000 ft (305 m) upstream from Purgatory Creek, 1.5 mi (2.4 km) downstream from Looney Creek, and at mile 306.4 (493.0 km).

DRAINAGE AREA.--2,075 mi² (5,374 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1898 to current year. Monthly discharge only for some periods, published in WSP 1303. Records for August 1895 to Feb. 11, 1898, published in WSP 11, 15, and 27 are in error and should not be used. Gage-height records collected at this site since 1895 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 602: 1917-24. WSP 972: 1935-36. WSP 1303: 1898-1916, 1917-20(M), 1922(M), 1924(M). WSP 1385: 1927. WSP 1556: Drainage area. WDR VA-73: 1972(M). See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 802.90 ft (244.724 m) above mean sea level. Prior to July 1, 1927, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period of doubtful or no gage-height record, May 18 to July 8, which are fair. Some regulation at high flow since October 1973 by Gathright Dam (under construction). National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--79 years, 2,458 ft³/s (69.61 m³/s), 16.09 in/yr (409 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 115,000 ft³/s (3,260 m³/s) Mar. 27, 1913, gage height, 31 ft (9.4 m), from floodmarks; minimum, 202 ft³/s (5.72 m³/s) Sept. 8, 1966, gage height, 1.44 ft (0.439 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in November 1877 reached a stage of 34.9 ft (10.64 m), from floodmark, discharge, about 142,000 ft³/s (4,000 m³/s), from rating curve extended above 110,000 ft³/s (3,100 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 21,000 ft³/s (590 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 10	0300	38300	1080	17.00	5.182	Apr. 6	0045	*66000	1870	22.81	6.952
Mar. 14	0915	28300	801	14.47	4.410						

Minimum discharge, 332 ft³/s (9.40 m³/s) Aug. 8, gage height, 1.98 ft (0.604 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	886	6560	2020	650	580	3850	1790	1150	660	540	395	389
2	944	5010	1620	775	590	2900	1650	1090	660	520	392	379
3	996	3790	1750	951	590	2480	1590	1050	620	500	380	385
4	1200	3160	1540	1080	600	2180	3820	1050	660	480	381	486
5	1120	2710	1410	1040	650	2350	42200	1170	560	470	367	470
6	825	2300	1330	1010	560	3050	45500	1210	600	470	355	441
7	688	1990	4470	967	500	2810	14000	1270	600	450	356	450
8	1460	1760	12800	832	540	2480	8520	1190	580	440	341	738
9	22900	1600	7870	750	540	2180	6300	1130	600	489	379	857
10	30500	1480	5210	836	560	1950	4940	1080	640	395	450	731
11	8650	1630	4140	865	668	1780	4130	1020	660	413	396	602
12	4370	1650	3830	550	701	1660	3530	970	600	560	475	516
13	2950	1620	3040	641	856	7040	3060	933	580	805	493	458
14	2230	1330	3500	807	1200	22300	2730	884	700	619	703	418
15	1780	1240	3040	900	1550	9810	2500	844	740	565	535	453
16	1500	1200	2880	850	1550	6330	2200	812	720	492	479	395
17	1370	1180	2670	500	1350	4670	2060	799	650	444	532	388
18	1300	1160	2390	600	1190	3700	1890	780	620	414	509	393
19	1220	1130	2100	680	1170	3680	1770	760	580	398	494	388
20	1330	1110	1890	740	1190	3280	1920	740	540	392	466	390
21	4630	1100	1810	780	1110	3690	1750	720	560	368	452	476
22	5600	1090	1700	720	998	3550	1610	700	560	359	432	511
23	3600	1080	1460	620	951	5910	1500	680	600	356	402	464
24	2750	1020	1410	650	1080	5780	1460	660	600	364	408	426
25	2600	964	1200	680	5830	4450	1420	700	640	356	513	395
26	13900	936	1310	700	6800	3600	1390	740	680	386	486	392
27	11100	945	1380	700	4160	3040	1320	760	640	416	435	419
28	6140	959	1320	670	3970	2640	1260	700	620	425	406	417
29	4200	1180	1290	500	---	2450	1220	660	580	435	450	409
30	3370	1670	1080	500	---	2190	1170	660	580	406	420	395
31	3760	---	1110	500	---	1990	---	660	---	390	399	---
TOTAL	149670	53932	85530	23085	40414	129250	170280	27620	18530	14036	13977	13988
MEAN	4820	1798	2759	745	1443	4169	5676	891	618	453	451	466
MAX	30500	6560	12800	1080	6800	22300	45500	1270	740	805	703	857
MIN	688	936	1080	500	500	1660	1170	660	540	344	341	379
CFSM	2.33	.87	1.33	.36	.70	2.01	2.74	.43	.30	.22	.22	.23
IN.	2.68	.97	1.53	.41	.72	2.32	3.05	.50	.33	.25	.25	.25

CAL YR 1976 TOTAL 825839 MEAN 2256 MAX 30500 MIN 339 CFSM 1.09 IN 14.81
WTR YR 1977 TOTAL 740319 MEAN 2028 MAX 45500 MIN 341 CFSM .98 IN 13.27

02019500 JAMES RIVER AT BUCHANAN, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1930, 1948, 1951-56, 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1952 to September 1956, April 1968 to current year.
WATER TEMPERATURES: October 1947 to September 1948, May 1951 to September 1956, April 1968 to current year.
SUSPENDED-SEDIMENT DISCHARGE: May 1951 to September 1956.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 945 micromhos Sept. 27, 1954; minimum, 67 micromhos Oct. 20, 1975, Oct. 10, 1976.
WATER TEMPERATURES: Maximum, 31.0°C July 5, 1955; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 740 micromhos Aug. 23; minimum, 67 micromhos Oct. 10.
WATER TEMPERATURES: Maximum, 30.5°C July 19; minimum, 0.5°C on several days during January and February.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
OCT 15...	2130	1660	215	5	90	31	28	4.8	8.6	.5	72	18
NOV 15...	1615	1240	235	5	97	33	30	5.3	11	1.4	78	25
DEC 15...	1550	3030	160	15	65	19	20	3.7	5.6	1.4	56	14
JAN 15...	1910	900	340	0	130	46	42	6.1	18	2.6	102	31
FEB 15...	1640	1570	335	20	110	36	36	5.7	22	3.2	94	35
MAR 15...	1610	8680	105	10	42	7	13	2.2	2.8	1.3	42	11
APR 15...	2215	2420	200	5	84	25	27	4.1	7.0	1.6	72	14
MAY 15...	2145	818	330	20	120	42	40	5.9	16	2.6	100	34
JUN 15...	1535	788	445	30	170	66	54	7.3	25	3.3	120	35
JUL 15...	1810	550	410	18	150	59	49	6.5	27	4.2	110	39
AUG 15...	1600	510	478	45	180	70	57	8.3	26	5.1	130	36
SEP 15...	1550	405	441	13	150	55	50	7.0	26	3.3	120	40

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED NITRATE (N) (MG/L)	DISSOLVED NITRATE (NO3) (MG/L)	DISSOLVED NITRITE (N) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO PHOSPHATE (PO4) (MG/L)	DISSOLVED IRON (FE) (UG/L)
OCT 15...	15	.2	6.7	108	119	.39	1.7	.00	.39	.13	.40	10
NOV 15...	15	.2	4.8	147	133	.27	1.2	.00	.27	.13	.40	20
DEC 15...	11	.0	5.6	89	90	.23	1.0	.00	.23	.02	.06	10
JAN 15...	34	.1	4.4	215	191	.40	1.8	.00	.40	.10	.31	20
FEB 15...	32	.1	1.0	198	187	.35	1.5	.00	.35	1.3	4.0	20
MAR 15...	4.7	.0	5.5	68	63	.39	1.7	.00	.39	.04	.12	20
APR 15...	14	.0	3.8	123	108	.12	.50	.01	.13	.06	.18	20
MAY 15...	29	.0	2.9	205	181	.21	.90	.03	.24	.20	.61	20
JUN 15...	55	.1	2.7	306	245	.10	.40	.00	.10	.90	2.8	10
JUL 15...	49	.1	6.8	253	246	.30	1.3	.01	.31	2.8	8.6	10
AUG 15...	67	.1	5.4	333	272	.52	2.3	.00	.52	.16	.49	30
SEP 15...	48	.1	5.8	265	242	.23	1.0	.00	.23	.38	1.2	20

02019500 JAMES RIVER AT BUCHANAN, VA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C). WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	560	138	253	275	318	125	200	250	390	382	595	495
2	470	108	205	250	338	140	175	250	380	395	520	493
3	440	143	215	315	345	145	215	260	400	430	445	498
4	390	139	210	270	420	155	175	275	404	432	518	490
5	352	159	220	330	385	165	100	280	415	425	478	473
6	335	157	227	277	370	165	90	290	420	432	538	558
7	318	157	225	260	295	160	111	275	385	450	442	555
8	330	216	107	300	320	160	125	235	380	465	550	530
9	130	195	105	305	345	165	134	260	420	458	558	368
10	67	178	125	264	340	165	148	240	460	455	515	430
11	138	205	160	236	340	175	150	245	420	475	500	388
12	130	197	155	330	370	185	161	275	460	472	538	415
13	146	202	140	325	355	185	165	325	445	459	450	355
14	160	238	150	275	375	90	180	335	435	448	515	409
15	215	235	160	340	335	105	200	330	445	410	478	443
16	245	217	170	325	230	135	200	385	445	400	523	451
17	258	252	180	305	210	145	220	360	443	422	530	466
18	278	258	180	295	200	146	200	340	440	418	578	462
19	290	222	145	278	305	160	220	330	400	422	540	479
20	245	257	198	300	275	150	220	340	400	443	538	507
21	200	218	200	345	255	170	230	305	390	432	570	490
22	125	213	215	310	220	165	220	355	385	470	523	630
23	125	252	221	275	240	150	225	355	407	503	740	640
24	163	238	220	318	275	120	235	320	415	508	613	625
25	175	241	250	318	260	130	215	320	405	535	518	670
26	124	283	250	330	105	137	195	375	415	538	470	593
27	88	238	200	315	125	152	250	385	435	550	458	530
28	114	269	202	360	140	168	250	370	365	600	518	530
29	126	280	240	320	---	140	255	365	388	625	535	523
30	144	260	260	365	---	175	260	350	375	620	480	550
31	178	---	262	350	---	190	---	350	---	630	435	---
MEAN	228	212	195	305	289	152	191	314	412	474	523	502

TEMPERATURE (DEG. C) OF WATER. WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.0	9.5	4.0	0.5	0.5	6.0	17.5	17.5	24.0	27.0	25.5	28.0
2	17.0	9.5	3.5	1.0	2.0	6.0	17.5	18.5	24.0	27.0	26.5	28.5
3	19.0	9.5	3.0	1.0	2.0	6.0	18.0	20.0	24.5	27.0	26.0	28.0
4	18.0	9.0	3.0	0.5	2.0	7.5	16.0	20.0	24.0	27.0	28.0	27.5
5	19.0	8.0	3.0	1.0	1.0	8.5	12.0	20.5	24.5	27.0	28.0	27.0
6	19.0	8.0	3.0	1.0	0.5	8.5	11.0	22.0	24.0	28.0	28.0	26.0
7	18.5	8.0	4.0	2.0	0.5	9.0	10.0	22.0	21.0	29.0	28.0	25.0
8	19.0	7.0	4.0	1.0	1.5	9.5	11.0	22.0	20.0	29.5	29.0	23.5
9	17.0	6.0	4.0	1.0	1.5	10.0	12.0	19.0	19.5	29.0	29.5	22.5
10	14.5	6.5	4.5	1.0	2.0	10.0	12.5	18.0	21.0	28.0	28.0	23.0
11	13.5	7.0	7.0	1.0	3.5	10.5	15.0	17.5	20.5	28.5	29.0	23.0
12	13.5	6.5	6.5	1.0	2.5	11.0	15.5	18.0	22.0	27.0	29.0	22.5
13	14.5	6.5	6.0	1.0	3.0	13.0	17.0	19.0	23.0	28.0	26.5	22.5
14	14.5	5.0	5.0	1.0	4.0	10.5	18.0	20.0	22.0	29.0	25.0	23.0
15	14.0	6.0	4.0	2.0	4.0	11.0	17.5	20.0	23.0	29.5	27.0	22.5
16	14.5	6.0	5.0	1.0	3.0	11.0	18.0	22.0	24.5	30.0	27.5	21.5
17	13.0	6.5	5.0	0.5	3.0	11.0	18.5	23.0	25.0	30.0	27.0	23.0
18	13.0	6.5	5.0	1.0	1.5	12.5	19.5	23.0	25.5	30.0	27.0	23.0
19	12.0	7.0	5.5	1.0	2.5	11.5	20.0	24.0	26.0	30.5	25.5	25.0
20	11.0	7.0	6.0	0.5	2.5	11.0	19.5	24.0	26.0	29.5	24.5	24.0
21	11.0	7.5	3.0	1.5	3.0	10.0	20.0	25.0	26.0	29.5	25.0	23.0
22	10.0	6.0	2.5	1.0	5.0	8.5	20.5	24.0	24.0	28.5	25.0	22.5
23	10.0	5.0	2.0	1.0	6.0	8.0	19.5	24.5	22.0	28.0	25.0	22.0
24	10.0	4.5	1.0	1.0	6.5	8.5	19.5	23.5	21.5	27.0	24.5	22.5
25	11.0	5.0	1.0	1.0	7.5	9.5	18.5	22.5	22.0	26.0	24.5	24.0
26	11.5	5.0	2.0	1.0	6.5	10.5	15.5	24.5	24.0	26.5	24.0	23.0
27	10.5	7.0	1.5	1.0	7.0	11.0	15.5	24.5	24.5	25.0	24.0	21.5
28	9.0	7.0	2.5	1.5	7.0	12.0	16.0	25.0	25.0	25.0	25.5	21.0
29	9.0	7.0	2.0	0.5	---	14.5	17.0	26.0	27.0	25.0	27.5	21.0
30	8.5	5.5	2.0	1.0	---	16.0	18.0	24.5	28.0	25.0	28.0	21.5
31	9.0	---	1.5	1.0	---	16.0	---	23.0	---	26.0	28.5	---
MEAN	13.5	7.0	3.5	1.0	3.5	10.5	16.5	22.0	23.5	28.0	26.5	23.5

02020500 CALFPASTURE RIVER ABOVE MILL CREEK, AT GOSHEN, VA

LOCATION.--Lat 37°59'16", long 79°29'38", Rockbridge County, Hydrologic Unit 02080202, on left bank 20 ft (6 m) upstream from bridge on State Highway 42 at Goshen and 400 ft (122 m) upstream from Mill Creek.

DRAINAGE AREA.--144 mi² (373 km²).

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,384.84 ft (422.099 m) above mean sea level.

REMARKS.--Records good except those for January, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--39 years, 157 ft³/s (4.446 m³/s), 14.81 in/yr (376 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,900 ft³/s (592 m³/s) Oct. 6, 1972, gage height, 12.78 ft (3.895 m), from rating curve extended above 9,200 ft³/s (260 m³/s) on basis of slope-area measurement of peak flow; no flow Sept. 5, 6, 1957, and Sept. 28, 1959, result of diversion.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s (71 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1630	*11200	317	10.75	3.277	Apr. 5	1100	6930	196	8.79	2.679
Mar. 13	1700	2990	84.7	6.39	1.948						

Minimum discharge, 2.0 ft³/s (0.057 m³/s) July 23, gage height, 1.86 ft (0.567 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	610	202	32	21	187	106	40	15	5.9	4.2	6.0
2	42	404	172	48	22	157	98	38	14	5.5	4.7	7.8
3	150	290	154	48	22	131	101	36	13	4.5	5.5	41
4	99	227	147	52	26	131	398	40	12	4.2	6.4	20
5	74	183	125	53	32	320	4420	43	12	4.7	6.4	12
6	61	147	117	52	30	350	1340	48	13	5.0	6.8	16
7	55	128	1050	50	25	279	666	46	12	4.2	4.5	29
8	360	114	995	35	22	223	423	46	12	3.2	4.2	26
9	5750	103	568	40	21	143	296	41	14	2.7	3.2	21
10	1520	98	380	45	24	157	223	38	14	5.8	2.9	20
11	520	91	302	38	27	138	187	36	13	14	4.0	18
12	274	91	279	30	30	125	157	34	12	13	7.3	15
13	183	84	257	30	35	1420	135	32	12	9.1	4.5	13
14	135	76	223	35	40	1250	120	30	17	7.8	7.8	11
15	112	72	202	43	41	624	112	29	20	5.9	5.9	11
16	93	69	190	38	34	404	98	26	16	4.2	5.9	10
17	86	67	172	33	23	279	88	25	15	3.7	6.4	10
18	81	65	147	29	26	240	84	24	14	6.4	10	9.6
19	70	61	131	26	30	227	79	26	12	2.9	6.8	9.1
20	131	61	120	29	30	210	70	22	10	2.7	4.7	41
21	638	61	117	33	28	206	69	21	10	2.3	4.0	41
22	430	60	98	33	25	414	63	19	8.7	2.4	3.4	30
23	268	58	103	31	32	806	60	18	9.6	2.3	2.4	24
24	206	56	76	31	47	527	58	17	11	3.2	5.6	22
25	221	55	79	32	151	362	55	21	11	5.5	4.6	19
26	925	53	98	33	157	262	52	21	11	6.4	8.2	48
27	603	53	86	34	144	206	51	18	8.7	5.0	6.8	69
28	383	55	66	31	190	176	48	16	8.2	4.7	4.5	50
29	262	70	72	27	---	157	46	15	7.8	4.0	3.4	40
30	206	214	51	23	---	135	42	17	6.8	4.5	3.2	31
31	573	---	69	21	---	120	---	16	---	4.2	2.7	---
TOTAL	14553	3776	6868	1115	1335	10406	9745	899	364.8	159.9	164.9	720.5
MEAN	469	126	222	36.0	47.7	336	325	29.0	12.2	5.16	5.29	24.0
MAX	5750	610	1050	53	190	1420	4420	48	20	14	10	69
MIN	39	53	51	21	21	120	42	15	6.8	2.3	2.4	6.0
CFSM	3.26	.88	1.54	.25	.33	2.33	2.26	.20	.09	.04	.04	.17
IN.	3.76	.98	1.77	.29	.34	2.69	2.52	.23	.09	.04	.04	.19

CAL YR 1976 TOTAL 60195.0 MEAN 164 MAX 5750 MIN 1.7 CFSM 1.14 IN 15.55
WTR YR 1977 TOTAL 50106.1 MEAN 137 MAX 5750 MIN 2.3 CFSM .95 IN 12.94

02021500 MAURY RIVER AT ROCKBRIDGE BATHS, VA

LOCATION.--Lat 37°54'26", long 79°25'20", Rockbridge County, Hydrologic Unit 02080202, on right bank at Rockbridge Baths, 1,200 ft (370 m) upstream from bridge on State Highway 39, and 1.0 mi (1.6 km) upstream from Hays Creek.

DRAINAGE AREA.--329 mi² (852 km²).

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1945, published as North River at Rockbridge Baths.

REVISED RECORDS.--WSP 972: 1929-40, 1941(M). WSP 1002: 1930(m). WSP 1553: 1931(m).

GAGE.--Water-stage recorder. Datum of gage is 1,100.33 ft (335.381 m) above mean sea level (levels by Corps of Engineers).

REMARKS.--Records good except those for period of no gage-height record, Dec. 25 to Feb. 4, which are fair. Since 1966, some regulation at times by Lake Merriweather on Little Calfpasture River. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--49 years, 363 ft³/s (10.28 m³/s), 14.98 in/yr (380 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,000 ft³/s (935 m³/s) Mar. 17, 1936, gage height, 13.07 ft (3.984 m), from rating curve extended above 16,000 ft³/s (450 m³/s); minimum, 5.8 ft³/s (0.16 m³/s) Sept. 10, 1966, gage height, 0.79 ft (0.241 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,500 ft³/s (130 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1800	*14900	422	9.93	3.027	Apr. 5	1300	8240	233	8.08	2.463
Mar. 13	1900	4630	131	6.49	1.978						

Minimum discharge, 20 ft³/s (0.57 m³/s) Aug. 11, gage height, 1.00 ft (0.305 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	1320	391	88	67	441	272	108	48	32	26	23
2	72	955	348	107	66	373	221	104	45	31	24	28
3	324	729	292	112	63	309	192	100	42	29	24	50
4	240	593	245	103	68	337	770	131	40	28	25	55
5	149	474	219	102	82	811	6220	179	40	29	24	36
6	109	378	197	99	70	817	3060	160	40	29	24	30
7	89	318	2220	98	61	664	1650	140	39	28	24	44
8	918	274	2410	84	57	534	1190	130	37	27	23	59
9	9190	237	1340	91	56	440	842	116	40	26	23	49
10	4130	219	908	96	63	378	630	102	42	27	23	41
11	1250	201	769	78	73	332	552	95	39	55	21	37
12	632	204	748	68	84	303	466	90	38	66	26	34
13	504	193	694	77	107	2710	402	86	37	62	28	32
14	401	174	582	87	109	2650	358	81	50	45	29	30
15	358	167	528	100	112	1450	322	77	63	37	28	30
16	337	166	503	89	94	978	287	71	52	32	25	31
17	310	156	450	80	84	730	257	67	46	29	27	31
18	315	151	381	73	82	639	233	65	42	33	35	30
19	357	146	324	69	87	627	216	68	39	29	31	29
20	516	143	306	79	91	596	201	65	37	28	26	43
21	1380	139	304	87	84	578	187	59	35	30	25	75
22	1050	135	223	79	75	853	175	55	34	27	24	53
23	733	126	240	84	89	1570	165	53	37	26	23	44
24	552	119	189	80	180	1110	164	51	37	25	26	40
25	664	115	155	78	476	814	158	63	39	29	36	38
26	3030	112	170	81	440	641	144	81	40	35	31	42
27	1900	115	155	79	398	523	138	64	36	31	28	112
28	1100	116	146	71	466	456	128	56	35	28	27	81
29	749	181	143	65	---	416	122	51	33	27	25	64
30	612	412	118	61	---	358	113	50	32	27	24	54
31	1270	---	130	58	---	312	---	50	---	26	24	---
TOTAL	33317	8768	15828	2603	3784	23750	19835	2668	1214	1013	809	1345
MEAN	1075	292	511	84.0	135	766	661	86.1	40.5	32.7	26.1	44.8
MAX	9190	1320	2410	112	476	2710	6220	179	63	66	36	112
MIN	72	112	118	58	56	303	113	50	32	25	21	23
CFSM	3.27	.89	1.55	.26	.41	2.33	2.01	.26	.12	.10	.08	.14
IN.	3.77	.99	1.79	.29	.43	2.69	2.24	.30	.14	.11	.09	.15

CAL YR 1976 TOTAL 145111 MEAN 396 MAX 9190 MIN 22 CFSM 1.20 IN 16.41
WTR YR 1977 TOTAL 114934 MEAN 315 MAX 9190 MIN 21 CFSM .96 IN 13.00

02022500 KERRS CREEK NEAR LEXINGTON, VA

LOCATION.--Lat 37°49'32", long 79°26'36", Rockbridge County, Hydrologic Unit 02080202, on right bank 100 ft (30 m) upstream from bridge on Interstate Highway 64, 1.4 mi (2.3 km) upstream from mouth, and 2.9 mi (4.7 km) north of Lexington.

DRAINAGE AREA.--35.0 mi² (90.6 km²).

PERIOD OF RECORD.--October 1926 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 1203: 1927-29, 1930-34(M), 1935-40, 1941(M), 1942, 1943-48(M), 1949. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 980.32 ft (298.802 m) above mean sea level (levels by Corps of Engineers). Jan. 27, 1927, to Sept. 30, 1953, nonrecording gage at site 1,000 ft (305 m) downstream at different datum.

REMARKS.--Records good except those for January, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--51 years, 35.1 ft³/s (0.994 m³/s), 13.62 in/yr (346 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,000 ft³/s (651 m³/s) Sept. 10, 1950, gage height, 13.8 ft (4.21 m), from floodmarks, site and datum then in use, from rating curve extended above 800 ft³/s (23 m³/s) on basis of contracted-opening and slope-area measurements of peak flow; minimum, 0.90 ft³/s (0.025 m³/s) July 22, 1966 (result of temporary dam upstream); minimum daily, 4.0 ft³/s (0.11 m³/s) many days in August and September 1932, Nov. 21, 1938, and July 22, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 600 ft³/s (17 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	0800	*2520	71.4	7.26	2.213	Mar. 13	0600	1180	33.4	5.84	1.780
Oct. 25	2300	976	27.6	5.56	1.695	Apr. 5	0200	793	22.5	5.26	1.603
Dec. 7	0500	943	26.7	5.49	1.673						

Minimum discharge, 4.5 ft³/s (0.13 m³/s) Aug. 8, gage height, 2.58 ft (0.786 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	62	21	16	11	26	27	18	13	7.8	6.0	5.0
2	18	48	21	19	11	23	26	18	12	7.8	5.7	5.0
3	20	41	20	19	11	20	26	22	12	7.4	6.0	6.4
4	12	36	19	16	12	46	252	30	11	7.1	6.0	5.7
5	10	32	19	16	12	62	473	35	11	7.4	5.7	7.1
6	9.8	28	18	19	11	44	148	26	12	7.4	5.7	6.0
7	10	26	312	18	11	35	95	23	10	6.8	5.7	10
8	119	26	106	16	10	30	74	20	10	6.8	5.4	21
9	848	23	66	15	10	27	60	19	14	6.8	6.0	12
10	122	22	53	16	13	24	52	19	12	7.8	6.0	8.5
11	55	21	51	15	16	23	45	18	10	9.1	6.4	7.1
12	39	23	52	13	19	22	41	18	10	12	6.0	6.8
13	31	20	46	14	26	330	38	17	10	8.5	8.2	6.4
14	26	20	40	15	22	116	35	16	18	7.8	7.1	6.4
15	24	20	39	16	20	77	33	15	13	7.1	6.4	6.0
16	22	19	37	14	18	58	31	14	15	7.1	6.0	6.8
17	24	16	33	12	15	47	29	14	12	6.8	6.4	6.8
18	20	18	30	11	14	46	28	14	11	6.8	7.8	6.4
19	18	17	28	12	13	40	28	14	10	6.4	6.0	6.4
20	66	17	24	13	13	47	26	13	9.7	6.0	6.0	8.5
21	42	16	24	13	12	41	25	13	9.1	6.0	6.4	6.8
22	40	16	28	12	11	82	24	12	9.1	6.0	6.0	6.8
23	30	14	27	12	12	72	24	12	12	6.0	5.4	6.8
24	31	14	26	11	34	57	26	12	11	6.0	12	6.8
25	130	14	26	11	40	48	22	19	12	7.4	7.8	6.8
26	234	14	24	12	31	42	21	17	11	9.7	6.4	7.1
27	83	14	23	12	30	38	20	13	9.7	7.1	6.0	6.8
28	56	15	23	10	29	36	20	12	12	6.4	5.7	6.8
29	44	28	22	10	---	33	19	12	10	6.4	5.4	6.4
30	41	26	19	10	---	30	19	23	8.5	6.4	5.0	6.4
31	111	---	20	10	---	28	---	14	---	6.0	5.0	---
TOTAL	2348.8	706	1301	428	487	1650	1785	542	340.1	224.1	195.6	221.8
MEAN	75.8	23.5	42.0	13.8	17.4	53.2	59.5	17.5	11.3	7.23	6.31	7.39
MAX	848	62	312	19	40	330	473	35	18	12	12	21
MIN	9.8	14	18	10	10	20	19	12	8.5	6.0	5.0	5.0
CFSM	2.17	.67	1.20	.39	.50	1.52	1.70	.50	.32	.21	.18	.21
IN.	2.50	.75	1.38	.45	.52	1.75	1.90	.58	.36	.24	.21	.24

CAL YR 1976 TOTAL 12146.4 MEAN 33.2 MAX 848 MIN 6.9 CFSM .95 IN 12.91
WTR YR 1977 TOTAL 10227.4 MEAN 28.0 MAX 848 MIN 5.0 CFSM .80 IN 10.87

02024000 MAURY RIVER NEAR BUENA VISTA, VA

LOCATION.--Lat 37°45'45", long 79°23'30", Rockbridge County, Hydrologic Unit 02080202, on right bank 0.5 mi (0.8 km) downstream from South River and 2.8 mi (4.5 km) northwest of Buena Vista.

DRAINAGE AREA.--646 mi² (1,673 km²).

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1945, published as North River near Buena Vista.

REVISED RECORDS.--WSP 952: 1940-41. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 846.58 ft (258.038 m) above mean sea level.

REMARKS.--Records good. Since 1966, some regulation at times by Lake Merriweather on Little Calfpasture River. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--39 years, 645 ft³/s (18.27 m³/s), 13.56 in/yr (344 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 105,000 ft³/s (2,970 m³/s) Aug. 20, 1969, gage height, 31.23 ft (9.159 m), from floodmarks, from rating curve extended above 17,000 ft³/s (480 m³/s) on basis of slope-area measurement of peak flow; minimum, 20 ft³/s (0.57 m³/s) Oct. 10, 1941, occurred during filling of a small reservoir 2 mi (3 km) upstream; unqualified minimum, 37 ft³/s (1.05 m³/s) Sept. 9, 1966; minimum gage height, 1.14 ft (0.347 m) Sept. 25, 1976.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936, reached a stage of about 22 ft (6.7 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,200 ft³/s (180 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	2130	*14700	416	12.69	3.868	Apr. 5	1700	8850	251	9.75	2.972

Minimum discharge, 74 ft³/s (2.10 m³/s) Aug. 8, 10; minimum gage height, 1.17 ft (0.357 m) Sept. 15-16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	223	1800	504	267	206	607	484	276	159	108	83	98
2	195	1390	548	322	203	542	451	268	151	106	80	102
3	445	1140	483	336	194	473	402	263	144	103	80	152
4	423	941	427	313	209	481	971	293	137	99	81	139
5	277	810	404	308	241	923	6570	369	133	99	80	123
6	213	681	377	296	200	1050	4540	336	137	101	78	113
7	183	599	3010	294	188	888	2490	303	135	97	78	110
8	747	539	3540	256	183	741	1820	284	130	95	77	171
9	10600	490	2070	276	180	632	1410	266	140	91	78	156
10	6340	461	1460	294	195	559	1080	252	145	101	76	130
11	2140	434	1230	245	226	508	952	239	134	122	84	118
12	1080	445	1170	210	231	474	828	229	132	138	81	111
13	790	422	1110	240	288	2630	732	220	130	152	94	105
14	637	389	959	275	274	3620	668	212	151	124	98	101
15	555	372	886	305	256	2030	615	204	197	107	93	100
16	530	364	854	280	236	1430	565	197	174	99	92	111
17	519	348	781	250	204	1090	522	189	149	93	95	113
18	459	336	697	225	201	926	489	186	138	90	98	106
19	495	326	622	215	206	909	461	192	132	94	98	103
20	709	318	596	245	210	840	444	185	127	89	92	106
21	1680	310	601	270	203	828	421	175	123	88	88	125
22	1390	302	490	250	190	982	396	166	120	112	91	132
23	1040	289	501	260	199	1880	376	163	136	92	89	116
24	804	277	460	250	275	1540	374	162	132	85	102	108
25	942	270	426	245	634	1190	361	200	135	91	122	105
26	4250	265	455	250	633	961	340	247	135	107	110	108
27	2700	270	426	243	568	808	326	197	125	98	103	137
28	1740	272	413	220	612	713	311	174	129	91	101	160
29	1270	374	409	205	---	663	298	164	125	86	98	134
30	1080	548	334	190	---	595	286	170	112	86	94	123
31	1570	---	377	180	---	535	---	159	---	85	97	---
TOTAL	46026	15782	26700	8015	7647	32048	29983	6940	4147	3129	2811	3616
MEAN	1485	526	861	259	273	1034	999	224	138	101	90.7	121
MAX	10600	1800	3540	336	634	3620	6570	369	197	152	122	171
MIN	183	265	334	180	180	473	286	159	112	85	76	98
CFSM	2.30	.81	1.33	.40	.42	1.60	1.55	.35	.21	.16	.14	.19
IN.	2.65	.91	1.54	.46	.44	1.85	1.73	.40	.24	.18	.16	.21

CAL YR 1976 TOTAL 240514 MEAN 657 MAX 10600 MIN 88 CFSM 1.02 IN 13.85
WTR YR 1977 TOTAL 186844 MEAN 512 MAX 10600 MIN 76 CFSM .79 IN 10.76

02025500 JAMES RIVER AT HOLCOMBS ROCK, VA

LOCATION.--Lat 37°30'04", long 79°15'46", Bedford County, Hydrologic Unit 02080203, on right bank at Holcombs Rock, 0.9 mi (1.4 km) downstream from Pedlar River, and at mile 268.6 (432.2 km).

DRAINAGE AREA.--3,259 mi² (8,441 km²).

PERIOD OF RECORD.--January 1900 to September 1915 (gage heights only), October 1926 to current year. Monthly discharge only for some periods, published in WSP 1303. Published as "at Salt Creek" December 1926 to June 1931.

REVISED RECORDS.--WSP 972: 1913(M), 1932-33, 1935(M), 1936. WSP 1303: 1928(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 548.53 ft (167.192 m) above mean sea level. January 1900 to September 1915, nonrecording gage in powerhouse of Owens Illinois Glass Company 1,000 ft (305 m) upstream at different datum. December 1926 to June 1931, water-stage recorder at site 2 mi (3.2 km) downstream at different datum.

REMARKS.--Records good. Some diurnal fluctuation caused by powerplants above station. National Weather Service gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--51 years, 3,538 ft³/s (100.2 m³/s), 14.74 in/yr (374 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 150,000 ft³/s (4,250 m³/s) Aug. 20, 1969, gage height, 35.50 ft (10.820 m), from rating curve extended above 73,000 ft³/s (2,100 m³/s) on basis of records for other stations in James River basin; minimum, 71 ft³/s (2.01 m³/s) Oct. 24, 1963; minimum daily, 223 ft³/s (6.32 m³/s) July 28, 1930; minimum gage height, 2.91 ft (0.887 m) Oct. 5, 1970.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 31.3 ft (9.54 m), from floodmarks, discharge, 118,000 ft³/s (3,340 m³/s), from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 25,000 ft³/s (710 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 10	0515	52300	1480	20.86	6.358	Mar. 14	1445	32400	918	16.36	4.987
Oct. 26	2300	25100	711	14.43	4.398	Apr. 6	0530	*66700	1890	23.47	7.154

Minimum discharge, 136 ft³/s (3.85 m³/s) Aug. 4, gage height, 3.18 ft (0.969 m); minimum daily, 407 ft³/s (11.5 m³/s) Aug. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1220	8330	2910	1790	1010	4560	2870	1810	1280	892	574	574
2	1430	7690	2850	1460	1250	3950	2670	1760	969	828	550	558
3	1710	5840	2700	1610	1260	3370	2560	1700	1010	784	574	558
4	1750	4800	2510	1890	1320	3020	3310	1680	959	740	407	664
5	1840	4170	2320	1910	1350	3310	35700	1790	931	715	542	706
6	1510	3640	2160	1840	1170	4060	56200	1910	902	706	526	775
7	1230	3200	7290	1810	1220	4110	22300	1900	902	648	496	766
8	1950	2880	18000	1650	1150	3710	12700	1880	883	648	481	846
9	31500	2670	12900	1580	1130	3320	9230	1740	874	648	481	1340
10	43600	2530	8230	1570	1190	3020	7110	1670	892	606	503	1240
11	15700	2390	6380	1620	1230	2790	5900	1600	883	631	615	883
12	7090	2430	5690	1340	1280	2630	5030	1560	874	673	542	819
13	4710	2370	5460	1030	1430	7380	4390	1380	864	950	784	732
14	3640	2270	5120	1440	1720	27900	3950	1410	874	1090	793	623
15	3020	2110	4590	1760	2050	15500	3660	1370	931	892	499	615
16	2670	2110	4320	1790	2210	9510	3370	1310	1100	810	810	623
17	2490	2020	4040	1370	2050	6940	3060	1270	1250	706	648	631
18	2320	1980	3720	1300	1810	5500	2870	1240	931	656	837	648
19	2190	1930	3370	1280	1740	4850	2720	1210	950	623	828	623
20	2470	1890	3140	1460	1750	4730	2750	1090	911	590	689	598
21	4970	1860	3020	1560	1730	4590	2650	1140	855	566	664	582
22	7960	1830	2820	1580	1580	4940	2490	1090	793	558	648	623
23	5730	1790	2630	1430	1520	7000	2360	1050	801	550	623	715
24	4290	1740	2450	1520	1610	8580	2310	1030	902	542	606	706
25	3950	1680	2300	1440	2990	6620	2190	1190	950	534	558	673
26	17300	1570	2280	1410	7490	5360	2120	1330	979	534	732	640
27	18500	1640	2360	1450	5200	4520	2140	1260	989	534	810	503
28	10100	1640	2310	1430	4590	4010	2020	1180	1020	550	766	689
29	6830	1910	2260	1260	---	3460	1930	1120	1080	590	689	681
30	5330	2270	2140	1120	---	3400	1850	1080	959	615	623	664
31	5440	---	1950	1100	---	3110	---	1090	---	590	566	---
TOTAL	224440	85180	134220	46800	56030	179950	214410	43840	28498	20999	19964	21298
MEAN	7240	2839	4330	1510	2001	5805	7147	1414	950	677	644	710
MAX	43600	8330	18000	1910	7490	27900	56200	1910	1280	1090	999	1340
MIN	1220	1570	1950	1030	1010	2630	1850	1030	793	534	407	503
CFSM	2.22	.87	1.33	.46	.61	1.78	2.19	.43	.29	.21	.20	.22
IN.	2.56	.97	1.53	.53	.64	2.05	2.45	.50	.33	.24	.23	.24

CAL YR 1976 TOTAL 1257748 MEAN 3436 MAX 43600 MIN 466 CFSM 1.05 IN 14.36
WTR YR 1977 TOTAL 1075629 MEAN 2947 MAX 56200 MIN 407 CFSM .90 IN 12.28

02026000 JAMES RIVER AT BENT CREEK, VA

LOCATION.--Lat 37°32'10", long 78°49'30", Nelson County, Hydrologic Unit 02080203, on left bank at town of Bent Creek, 150 ft (46 m) downstream from Bent Creek, 575 ft (175 m) upstream from bridge on U.S. Highway 60, 1.3 mi (2.1 km) southeast of Gladstone, and at mile 227.8 (366.5 km).

DRAINAGE AREA.--3,683 mi² (9,539 km²).

PERIOD OF RECORD.--October 1924 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to 1926, published as "at Bent Creek, near Gladstone."

REVISED RECORDS.--WSP 742: 1931(m). WSP 972: 1935-36. WSP 1066: 1940. WSP 1203: 1942. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 381.39 ft (116.248 m) above mean sea level. Prior to Sept. 12, 1930, nonrecording gage at same site and datum.

REMARKS.--Records good. Large diurnal fluctuation caused by powerplants above station. National Weather Service gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--53 years, 4,159 ft³/s (117.8 m³/s), 15.34 in/yr (390 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 176,000 ft³/s (4,980 m³/s) June 21, 1972, gage height, 27.13 ft (8.269 m), from high-water mark in gage house, from rating curve extended above 89,000 ft³/s (2,500 m³/s) on basis of velocity-area studies and records for other stations in James River basin; minimum, 222 ft³/s (6.29 m³/s) Oct. 13, 14, 1930, gage height, 2.21 ft (0.674 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 26,500 ft³/s (750 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 10	0300	48000	1360	14.58	4.444	Apr. 6	1145	*61600	1740	16.66	5.078
Mar. 14	2130	29700	841	11.34	3.456						

Minimum discharge, 347 ft³/s (9.83 m³/s) Aug. 8, 9; minimum gage height, 2.36 ft (0.719 m) Aug. 7, 8, 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1900	7220	2860	2140	1720	5400	3500	2160	1400	1040	645	718
2	2860	9060	3290	2020	1620	5050	3060	2220	1540	1040	650	527
3	2050	7160	3140	1790	2040	4450	3000	2390	1290	859	661	518
4	2180	6310	3060	1940	1520	3810	4250	1990	1310	859	656	677
5	1910	5150	2820	2290	2030	3450	20200	2390	1090	845	639	761
6	1670	4600	2510	2060	2130	4830	57000	2120	1190	767	552	624
7	1590	4000	5720	2230	1560	4830	28400	2210	1720	792	474	772
8	2510	3530	15500	2100	1700	4560	14600	2470	976	742	347	952
9	35700	3350	15000	1920	1530	3930	11000	2200	997	754	521	1340
10	40900	2710	9890	1940	1550	3890	8720	2050	1090	754	589	1240
11	16000	2860	7530	2190	1680	3440	7280	2140	1180	754	532	1040
12	8180	2810	6730	2550	1760	2810	6700	1990	1010	859	677	852
13	6110	2780	6270	2080	1460	4640	5600	1710	1180	845	734	721
14	4410	2770	6150	1370	1740	21800	5060	1640	1140	926	740	889
15	3620	2240	5610	1990	2260	18600	4730	1630	1310	1120	1020	637
16	2860	2380	5360	2760	2530	10900	4240	1670	1180	1090	1330	657
17	3190	2310	5130	2430	2650	7960	3920	1640	1760	767	599	727
18	3110	2010	4410	1790	2160	6520	3710	1570	1470	742	494	663
19	2430	2230	4330	2260	1970	5750	3600	1500	1320	819	761	772
20	5390	2090	3870	1870	1830	5630	3320	1420	1120	779	821	653
21	5120	2160	3930	2450	2200	5410	3820	1470	1290	742	687	642
22	7930	2020	3500	2360	1820	6020	2970	1330	946	742	720	619
23	7260	1950	3090	2630	1760	6220	3110	1340	1410	680	856	682
24	5740	2020	3050	1970	1990	9210	2940	1390	1060	645	717	714
25	4970	1850	2810	1870	2300	7630	3030	1560	1210	680	683	863
26	15200	1810	2750	2040	6550	6530	2730	1540	1170	680	566	628
27	20500	1690	2930	1830	6680	5490	2610	1610	1250	656	876	686
28	12100	1860	2720	1990	5400	4950	2680	1530	1200	656	810	637
29	8280	2630	2670	1980	---	4320	2340	1400	1340	680	750	616
30	6690	2580	2510	1700	---	4260	2240	1700	1470	680	513	707
31	6160	---	2460	1770	---	3800	---	1360	---	668	823	---
TOTAL	248520	98140	151600	64310	66140	196090	230360	55340	37619	24662	21431	22534
MEAN	8017	3271	4890	2075	2362	6325	7679	1785	1254	796	691	751
MAX	40900	9060	15500	2760	6680	21800	57000	2470	1760	1120	1330	1340
MIN	1590	1690	2460	1370	1460	2810	2240	1330	946	645	347	518
CFSM	2.18	.89	1.33	.56	.64	1.72	2.09	.49	.34	.22	.19	.20
IN.	2.51	.99	1.53	.65	.67	1.98	2.33	.56	.38	.25	.22	.23

CAL YR 1976 TOTAL 1426927 MEAN 3899 MAX 40900 MIN 674 CFSM 1.06 IN 14.41
WTR YR 1977 TOTAL 1216746 MEAN 3334 MAX 57000 MIN 347 CFSM .91 IN 12.29

02027000 TYE RIVER NEAR LOVINGSTON, VA

OCATION.--Lat 37°42'55", long 78°58'55", Nelson County, Hydrologic Unit 02080203, on right bank at downstream side of bridge on State Highway 158, 3.5 mi (5.6 km) downstream from Hat Creek, 4.8 mi (7.7 km) upstream from Piney River, and 6.8 mi (10.9 km) southwest of Lovingston.

RAINAGE AREA.--92.8 mi^2 (240.4 km^2).

ERIOD OF RECORD.--August 1938 to current year.

EVISED RECORDS.--WSP 892: 1938. WSP 2104: Drainage area.

AGE.--Water-stage recorder. Datum of gage is 578.39 ft (176.293 m) above mean sea level. Sept. 15, 1969, to Oct. 15, 1970, nonrecording gage at same site and datum.

EMARKS.--Records good except those for January and February, which are poor. Several observations of water temperature were made during the year.

OOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

VERAGE DISCHARGE.--39 years, 152 ft^3/s (4.305 m^3/s), 22.24 in/yr (565 mm/yr).

XTREMES FOR PERIOD OF RECORD.--Maximum discharge, 80,000 ft^3/s (2,270 m^3/s) Aug. 20, 1969, gage height, 29.0 ft (8.84 m), from floodmarks, from rating curve extended above 7,600 ft^3/s (220 m^3/s) on basis of slope-area measurement of peak flow; minimum, 0.50 ft^3/s (0.014 m^3/s) Sept. 10, 11, 1966.

XTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,600 ft^3/s (45 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
ct. 9	0830	*6000	170	10.18	3.103	Mar. 13	1000	1920	54.4	5.18	1.579

Minimum discharge observed, 7.8 ft^3/s (0.22 m^3/s) Sept. 5, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97	246	94	70	55	107	149	82	135	28	10	9.6
2	109	220	95	72	54	98	142	81	81	26	8.6	9.6
3	143	207	87	79	58	94	140	84	67	25	38	8.6
4	69	186	84	80	63	163	250	92	55	24	14	12
5	54	172	83	86	68	270	580	92	51	23	13	10
6	48	158	84	87	66	220	538	84	51	23	11	22
7	42	147	711	87	63	191	416	76	47	20	11	8.6
8	97	134	462	76	61	172	352	71	43	19	8.6	14
9	1940	126	326	76	60	155	300	67	53	18	15	19
10	580	122	270	76	60	140	267	65	50	22	11	20
11	332	116	243	74	62	132	246	64	42	35	14	13
12	240	122	226	70	63	126	220	61	41	32	13	10
13	189	109	196	69	67	1190	199	58	39	37	16	9.6
14	155	101	179	73	70	802	181	55	60	28	16	9.0
15	134	99	176	80	62	538	169	53	64	23	16	8.6
16	120	96	174	86	57	412	158	51	47	21	13	11
17	130	92	160	90	50	329	149	50	46	17	16	17
18	114	89	147	88	50	291	140	47	41	14	16	15
19	99	86	140	80	51	261	134	47	37	12	14	12
20	293	82	144	75	50	249	128	46	34	11	11	10
21	282	81	153	70	51	226	130	43	32	13	10	9.0
22	215	79	126	67	48	267	118	41	31	37	11	9.0
23	181	76	120	64	53	264	114	41	38	25	10	8.6
24	184	74	112	61	125	252	124	44	38	19	10	8.6
25	286	74	115	59	155	234	109	103	38	18	15	8.6
26	740	73	128	58	114	218	103	101	37	15	14	11
27	420	78	114	58	116	204	98	60	32	15	11	9.6
28	319	76	112	58	118	194	92	50	38	13	10	9.0
29	264	140	110	57	---	184	89	46	38	12	9.0	8.2
30	229	112	94	56	---	172	86	45	31	12	8.6	8.2
31	313	---	86	56	---	160	---	47	---	11	8.2	---
TOTAL	8418	3573	5351	2238	1970	8315	5921	1947	1437	648	402.0	338.4
MEAN	272	119	173	72.2	70.4	268	197	62.8	47.9	20.9	13.0	11.3
MAX	1940	246	711	90	155	1190	580	103	135	37	38	22
MIN	42	73	83	56	48	94	86	41	31	11	8.2	8.2
CFSM	2.93	1.28	1.86	.78	.76	2.89	2.12	.68	.52	.23	.14	.12
IN.	3.37	1.43	2.14	.90	.79	3.33	2.37	.78	.58	.26	.16	.14

CAL YR 1976 TOTAL 57859.0 MEAN 158 MAX 1940 MIN 12 CFSM 1.70 IN 23.19
WTR YR 1977 TOTAL 40558.4 MEAN 111 MAX 1940 MIN 8.2 CFSM 1.20 IN 16.26

02027500 PINEY RIVER AT PINEY RIVER, VA

LOCATION.--Lat 37°42'08", long 79°01'40", Nelson County, Hydrologic Unit 02080203, on left bank at upstream side of bridge on State Highway 151, 0.2 mi (0.3 km) southwest of Piney River Post Office, 1.7 mi (2.7 km) downstream from Indian Creek, and 2.5 mi (4.0 km) southeast of Lowesville.

DRAINAGE AREA.--47.6 mi² (123.3 km²).

PERIOD OF RECORD.--July 1949 to current year.

REVISED RECORDS.--WSP 2104: Drainage area. WDR VA-72: 1971(M).

GAGE.--Water-stage recorder. Datum of gage is 633.58 ft (193.115 m) above mean sea level. Prior to May 27, 1969, water-stage recorder, and Nov. 4, 1969, to Feb. 26, 1970, nonrecording gage at site 20 ft (6 m) downstream from former highway bridge at same datum. Feb. 26, 1970, to Sept. 20, 1973, on right bank 20 ft (6 m) upstream from bridge at same datum.

REMARKS.--Records good except those for January, which are poor. Periodic dewatering of upstream quarries adds small amount of inflow. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--28 years, 92.8 ft³/s (2.628 m³/s), 26.48 in/yr (673 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,000 ft³/s (1,080 m³/s) Aug. 20, 1969, gage height, 13.8 ft (4.21 m), from floodmarks, from rating curve extended above 6,000 ft³/s (170 m³/s) on basis of slope-area measurement of peak flow; minimum, 1.1 ft³/s (0.031 m³/s) Sept. 13, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1949 reached a stage of 9.9 ft (3.02 m), from floodmarks.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 650 ft³/s (18 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	0700	*2920	82.7	6.27	1.911	Mar. 13	0700	1380	39.1	4.05	1.234
Oct. 25	2300	665	18.8	2.86	.872						

Minimum discharge observed, 3.5 ft³/s (0.099 m³/s) Sept. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	174	51	43	31	49	94	53	95	16	5.7	4.2
2	38	162	52	46	32	47	94	52	47	15	6.6	5.6
3	42	150	50	49	35	46	92	56	42	14	14	4.8
4	24	139	51	51	36	81	172	72	38	13	7.0	5.2
5	19	126	50	53	34	148	352	66	36	13	5.6	4.5
6	17	114	51	51	35	135	365	62	36	12	5.2	5.2
7	15	104	278	51	34	122	310	57	33	11	5.2	6.2
8	54	94	253	49	33	112	266	55	30	10	4.8	19
9	1090	86	212	47	33	102	230	52	37	10	5.2	12
10	370	82	188	45	34	92	203	51	30	14	5.2	11
11	243	75	169	44	34	85	181	50	27	23	5.6	8.0
12	181	78	157	42	35	66	160	49	26	20	4.5	6.6
13	146	69	139	45	38	824	143	45	25	25	8.0	5.9
14	114	64	126	48	34	536	130	43	37	15	7.0	5.2
15	94	63	124	50	32	378	120	41	33	12	8.0	4.8
16	82	58	116	52	30	300	110	39	28	11	6.2	4.5
17	85	56	102	55	28	251	102	37	26	10	6.6	8.5
18	70	52	96	52	27	220	94	35	24	10	7.6	6.6
19	63	51	90	47	26	186	92	35	22	9.5	7.0	5.6
20	144	50	94	43	27	176	90	33	21	8.0	5.9	5.6
21	143	49	92	40	27	152	86	30	19	8.0	5.6	4.5
22	135	47	83	37	28	184	82	30	18	15	5.2	4.5
23	124	45	82	35	28	174	80	30	27	9.0	4.8	4.2
24	128	44	78	33	46	172	82	30	23	7.6	4.5	4.0
25	194	44	77	31	49	162	72	50	23	8.5	9.0	4.5
26	393	43	80	31	42	152	69	43	22	10	6.6	5.6
27	305	45	72	32	45	141	64	32	19	8.0	5.9	5.9
28	248	45	70	32	50	132	62	29	23	7.3	4.8	4.5
29	208	66	66	31	---	122	57	28	21	6.6	4.5	4.5
30	181	55	62	31	---	114	55	28	17	6.2	4.0	4.5
31	205	---	55	31	---	102	---	29	---	5.9	4.0	---
TOTAL	5187	2330	3266	1327	963	5563	4109	1342	905	363.6	189.8	185.7
MEAN	167	77.7	105	42.8	34.4	179	137	43.3	30.2	11.7	6.12	6.19
MAX	1090	174	278	55	50	824	365	72	95	25	14	19
MIN	15	43	50	31	26	46	55	28	17	5.9	4.0	4.0
CFSM	3.51	1.63	2.21	.90	.72	3.76	2.88	.91	.63	.25	.13	.13
IN.	4.05	1.82	2.55	1.04	.75	4.35	3.21	1.05	.71	.28	.15	.15

CAL YR 1976 TOTAL 34095.0 MEAN 93.2 MAX 1090 MIN 5.5 CFSM 1.96 IN 26.65
WTR YR 1977 TOTAL 25731.1 MEAN 70.5 MAX 1090 MIN 4.0 CFSM 1.48 IN 20.11

02027800 BUFFALO RIVER NEAR TYE RIVER, VA

LOCATION.--Lat 37°36'20", long 78°55'25", Nelson County, Hydrologic Unit 02080203, on right bank 35 ft (11 m) upstream from bridge on State Highway 657, 2.1 mi (3.4 km) upstream from mouth, and 3.5 mi (5.6 km) southeast of town of Tye River.

DRAINAGE AREA.--147 mi² (381 km²).

PERIOD OF RECORD.--August 1960 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 444.39 ft (135.450 m) above mean sea level.

REMARKS.--Records good except those for January and February, which are poor. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--17 years, 104 ft³/s (4.644 m³/s), 15.15 in/yr (385 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,000 ft³/s (1,270 m³/s) Aug. 20, 1969, gage height, 27.95 ft (8.519 m), from floodmark, from rating curve extended above 1,800 ft³/s (51 m³/s) on basis of computation of flow over dam at gage height 11.03 ft (3.362 m) and slope-area measurement at gage height 27.95 ft (8.519 m); minimum, 3.2 ft³/s (0.091 m³/s) Sept. 8-13, 1966; minimum gage height, 0.28 ft (0.085 m) Sept. 9-13, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,400 ft³/s (40 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1300	*12000	340	14.48	4.414	Oct. 26	0600	3910	111	9.12	2.780

Minimum discharge, 13 ft³/s (0.37 m³/s) Aug. 11, gage height, 0.74 ft (0.226 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	187	325	101	106	79	102	106	90	94	34	15	16
2	210	283	97	108	79	96	107	90	83	31	22	15
3	274	258	96	115	80	98	110	90	67	30	48	14
4	94	236	100	120	88	104	244	90	62	27	23	14
5	70	216	110	120	93	130	682	93	58	27	18	14
6	59	195	118	114	90	120	545	91	61	27	15	15
7	54	181	726	124	87	118	365	86	61	25	14	18
8	96	166	500	120	83	114	297	90	54	22	14	29
9	3840	159	330	113	83	110	242	80	61	22	15	31
10	759	157	260	112	84	109	213	77	62	21	14	24
11	515	148	236	100	86	107	193	77	51	22	20	21
12	380	157	221	97	93	107	171	75	50	25	18	18
13	300	145	195	99	100	424	157	74	50	26	16	16
14	255	130	171	100	110	425	146	72	59	24	18	16
15	226	115	166	110	102	294	138	70	83	21	26	16
16	213	110	171	118	86	234	130	67	62	18	18	19
17	226	107	157	120	77	186	124	67	66	18	50	23
18	216	106	146	112	74	169	120	67	56	17	102	20
19	190	102	140	105	78	150	114	67	48	16	25	18
20	582	101	157	100	78	164	110	66	43	16	20	18
21	605	98	171	98	78	144	114	64	40	15	18	16
22	395	96	132	96	77	205	107	61	36	16	25	16
23	294	94	130	92	85	221	106	61	56	18	20	16
24	274	93	129	89	93	176	138	62	58	15	19	16
25	426	94	138	86	118	157	110	90	61	15	23	16
26	1960	93	162	84	98	146	102	102	67	17	20	16
27	620	98	159	84	104	134	99	75	47	18	18	21
28	440	99	138	83	112	128	96	67	45	16	17	18
29	362	154	120	82	---	124	93	64	64	15	16	16
30	308	136	106	81	---	118	90	64	40	15	16	16
31	385	---	105	80	---	110	---	69	---	15	16	---
TOTAL	14815	4452	5688	3168	2495	5024	5369	2358	1745	644	719	542
MEAN	478	148	183	102	89.1	162	179	76.1	58.2	20.8	23.2	18.1
MAX	3840	325	726	124	118	425	682	102	94	34	102	31
MIN	54	93	96	80	74	96	90	61	36	15	14	14
CFSM	3.25	1.01	1.25	.69	.61	1.10	1.22	.52	.40	.14	.16	.12
IN.	3.75	1.13	1.44	.80	.63	1.27	1.36	.60	.44	.16	.18	.14

CAL YR 1976 TOTAL 66759 MEAN 182 MAX 3840 MIN 19 CFSM 1.24 IN 16.89
WTR YR 1977 TOTAL 47019 MEAN 129 MAX 3840 MIN 14 CFSM .88 IN 11.90

02028500 ROCKFISH RIVER NEAR GREENFIELD, VA

LOCATION.--Lat 37°52'10", long 78°49'25", Nelson County, Hydrologic Unit 02080203, on left bank 50 ft (15 m) downstream from bridge on State Highway 634, 2.8 mi (4.5 km) downstream from confluence of North and South Forks, and 4.1 mi (6.6 km) south of Greenfield.

DRAINAGE AREA.--94.6 mi² (245.0 km²).

PERIOD OF RECORD.--April 1943 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 530.29 ft (161.632 m) above mean sea level. Prior to Aug. 21, 1943, nonrecording gage at same site and datum.

REMARKS.--Records good except those for January, which are poor, and those for period of no gage-height record, June 15 to July 21, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--34 years, 138 ft³/s (3.908 m³/s), 19.81 in/yr (503 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 70,000 ft³/s (1,980 m³/s) Aug. 20, 1969, gage height, 31.2 ft (9.51 m), from floodmarks, from rating curve extended above 8,500 ft³/s (240 m³/s) on basis of contracted-opening measurement at gage height 18.11 ft (5.520 m), slope-area measurements at gage heights 17.2 ft (5.24 m), 23.4 ft (7.13 m), and 31.2 ft (9.51 m), and peak runoff comparison with nearby stations; minimum, 0.20 ft³/s (0.006 m³/s) Sept. 8-12, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 15, 1942, reached a stage of 23.4 ft (7.13 m), from floodmarks, discharge, about 30,000 ft³/s (850 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,680 ft³/s (133 m³/s) at 1000 hours Oct. 9, gage height, 8.81 ft (2.685 m), no other peak above base of 1,500 ft³/s (42 m³/s); minimum, 2.3 ft³/s (0.065 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	118	242	97	77	53	85	120	73	70	13	4.2	3.7
2	267	193	95	80	53	82	116	73	49	12	5.8	4.2
3	210	179	87	81	56	80	114	76	40	11	16	4.9
4	109	164	85	83	59	114	244	91	35	11	41	4.0
5	85	149	81	88	61	173	605	79	32	11	17	3.4
6	69	137	80	86	60	153	467	71	33	11	8.4	3.4
7	61	130	672	85	59	142	355	65	29	10	6.9	3.5
8	89	121	467	78	58	128	289	63	27	9.8	6.3	6.6
9	1800	114	304	73	56	118	252	58	32	9.2	7.8	7.5
10	593	112	252	70	55	112	220	57	28	15	6.0	7.5
11	306	105	224	67	57	106	206	56	25	24	5.8	5.8
12	220	113	212	66	60	103	188	54	24	21	5.1	4.2
13	178	105	190	67	66	784	159	51	24	25	4.7	3.8
14	145	100	171	68	72	643	151	49	40	19	4.9	3.5
15	123	97	168	71	68	433	137	47	33	16	5.3	3.4
16	110	92	151	70	61	314	130	44	29	14	5.1	4.2
17	121	90	145	83	59	256	122	44	26	13	4.5	4.9
18	107	87	138	79	57	232	116	41	23	11	4.7	4.0
19	96	84	130	76	54	201	113	41	22	9.0	4.5	4.9
20	346	79	134	79	52	190	107	39	21	7.0	3.8	4.0
21	300	79	126	67	54	168	103	37	20	6.2	3.5	3.4
22	214	78	116	64	57	225	98	38	19	25	3.5	3.1
23	179	74	110	63	58	202	96	33	29	11	3.7	3.0
24	164	72	107	62	84	188	105	32	30	7.6	3.8	3.0
25	231	71	109	61	105	174	94	76	29	7.5	4.7	3.1
26	619	71	112	58	91	166	90	75	27	8.7	4.0	3.1
27	340	72	104	56	94	156	88	69	22	7.2	3.4	3.1
28	258	73	103	55	94	148	86	61	26	6.3	5.1	3.1
29	240	132	101	55	---	140	78	37	20	5.6	3.0	2.5
30	222	109	95	54	---	134	76	36	14	5.4	2.7	2.4
31	310	---	85	54	---	126	---	39	---	5.1	3.8	---
TOTAL	8230	3326	5051	2173	1813	6276	5131	1663	878	368.0	200.0	125.2
MEAN	265	111	163	70.1	64.8	202	171	53.6	29.3	11.9	6.45	4.17
MAX	1800	242	672	88	105	784	605	91	70	25	41	7.5
MIN	61	71	80	54	52	80	76	32	14	5.1	2.7	2.4
CFSM	2.80	1.17	1.72	.74	.69	2.14	1.81	.57	.31	.13	.07	.04
IN.	3.24	1.31	1.99	.85	.71	2.47	2.02	.65	.35	.14	.08	.05

CAL YR 1976 TOTAL 55515.0 MEAN 152 MAX 1800 MIN 10 CFSM 1.61 IN 21.83
WTR YR 1977 TOTAL 35230.2 MEAN 96.5 MAX 1800 MIN 2.4 CFSM 1.02 IN 13.85

02029000 JAMES RIVER AT SCOTTSVILLE, VA

LOCATION.--Lat 37°47'50", long 78°29'30", Albemarle County, Hydrologic Unit 02080203, on left bank 900 ft (270 m) downstream from bridge on State Highway 20 at Scottsville, 6.8 mi (10.9 km) upstream from Hardware River, and at mile 188.6 (303.5 km).

DRAINAGE AREA.--4,584 mi² (11,873 km²).

PERIOD OF RECORD.--October 1924 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 727: 1931(m). WSP 972: 1936(M), 1940(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 253.18 ft (77.169 m) above mean sea level. Prior to Nov. 20, 1928, nonrecording gage at same site and datum.

REMARKS.--Records good. Large diurnal fluctuation caused by powerplants above station. National Weather Service gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--53 years, 5,076 ft³/s (143.8 m³/s), 15.04 in/yr (382 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 301,000 ft³/s (8,520 m³/s) June 22, 1972, gage height, 34.02 ft (10.369 m), from floodmarks, from rating curve extended above 120,000 ft³/s (3,400 m³/s) on basis of slope-conveyance study; minimum daily, 300 ft³/s (8.50 m³/s) Sept. 13, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1870 reached a stage of 30.7 ft (9.36 m), discharge, about 215,000 ft³/s (6,100 m³/s), and flood in November 1877 reached a stage of 27.9 ft (8.50 m), discharge, about 160,000 ft³/s (4,500 m³/s), from information by local resident. Flood in March 1913 reached a stage of 25.16 ft (7.669 m), from floodmarks, discharge, 121,000 ft³/s (3,430 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 27,000 ft³/s (760 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	2400	55400	1570	17.74	5.407	Mar. 15	0500	32500	920	13.55	4.130
Oct. 26	1015	30600	867	13.13	4.002	Apr. 6	2230	*67400	1910	19.55	5.959

Minimum discharge, 474 ft³/s (13.4 m³/s) Aug. 9, gage height, 1.72 ft (0.524 m); minimum daily, 484 ft³/s (13.7 m³/s) Aug. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2020	8610	3550	3070	1880	5900	4580	2730	1780	1450	707	726
2	3630	11100	4300	2500	1960	6040	4050	2730	1960	1120	719	831
3	5700	9700	4140	2550	1990	5310	3700	2680	1770	1150	699	650
4	3180	8060	3910	2610	2440	4690	4440	3060	1610	907	786	636
5	2700	7000	3510	2920	2200	4400	12400	2370	1510	960	784	769
6	2440	6070	3390	2900	2250	4810	54900	2770	1280	953	714	865
7	2180	5200	7440	2820	2100	4200	47200	2900	1750	880	669	785
8	2280	4820	16600	2730	1900	5390	20100	2630	1480	870	528	1100
9	23600	4190	20200	2660	2020	5890	14400	2790	1130	817	484	1360
10	53300	3900	13800	2570	2070	4620	11400	2590	1170	824	549	1600
11	35400	3850	10400	2100	2130	4150	9540	2210	1340	903	731	1540
12	14300	3730	8940	2200	2440	3950	8420	2550	1210	933	629	1180
13	8950	3850	8090	2300	2460	5200	7550	2330	1190	984	782	900
14	7030	3590	7720	2450	2280	17900	6330	2080	1270	986	826	837
15	5340	3280	7210	2150	2500	26800	6050	1980	1510	1070	919	1010
16	4190	3230	6620	3110	2940	15200	5590	1810	1480	1180	1330	790
17	3560	3130	6500	2620	3240	11000	5010	2020	1450	1140	1350	838
18	4100	3040	5900	2300	2790	8930	4450	1920	1950	806	1240	896
19	3740	2930	5240	2010	2680	7760	4170	1780	1620	788	1310	811
20	7130	2770	4930	2480	2530	6960	4130	1820	1450	845	985	870
21	12700	2870	5180	2230	2440	7140	4190	1840	1230	812	984	776
22	8580	2630	4530	2540	2600	6990	4170	1610	1420	781	855	735
23	10300	2760	4280	2430	2100	8620	3710	1530	1050	812	948	717
24	8890	2770	3920	2400	2540	9740	3780	1630	1540	760	1080	747
25	6650	2500	3760	2400	2790	10300	3780	1750	1180	699	985	810
26	22800	2380	3710	2350	4250	8480	3450	2320	1350	732	858	977
27	25800	2370	3710	2580	8550	7560	3290	2110	1380	729	729	729
28	17500	2520	3590	2380	7840	6220	3080	1990	1400	706	806	768
29	12000	3510	3580	2120	---	5690	3110	1680	1340	701	961	728
30	9310	4440	3380	2030	---	5410	2790	1480	1490	697	683	691
31	8890	---	3280	1910	---	4710	---	1850	---	708	653	---
TOTAL	338760	130930	195610	77140	79150	241170	273930	67380	43030	27811	26222	26760
MEAN	10930	4364	6310	2488	2827	7780	9131	2174	1434	897	846	892
MAX	53300	11100	20200	3110	8550	26800	54900	3060	1960	1450	1350	1600
MIN	2180	2370	3280	1910	1880	3950	2790	1530	1050	697	484	636
CFSM	2.38	.95	1.38	.54	.62	1.70	1.99	.47	.31	.20	.18	.20
IN.	2.75	1.06	1.59	.63	.64	1.96	2.22	.55	.35	.23	.21	.22

CAL YR 1976 TOTAL 1904119 MEAN 5203 MAX 53300 MIN 718 CFSM 1.14 IN 15.45
WTR YR 1977 TOTAL 1527902 MEAN 4186 MAX 54900 MIN 484 CFSM .91 IN 12.40

02030000 HARDWARE RIVER BELOW BRIERY RUN, NEAR SCOTTSVILLE, VA

LOCATION.--Lat 37°48'45", long 78°27'20", Fluvanna County, Hydrologic Unit 02080203, on left bank 75 ft (23 m) upstream from bridge on State Highway 637, 0.8 mi (1.3 km) downstream from Briery Run, 2.4 mi (3.9 km) northeast of Scottsville, and 10.8 mi (17.4 km) upstream from mouth.

DRAINAGE AREA.--116 mi² (300 km²).

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 952: 1941(M). WSP 1002: 1940, 1943. WSP 1032: 1940, 1944.

GAGE.--Water-stage recorder. Datum of gage is 294.96 ft (89.904 m) above mean sea level.

REMARKS.--Records good except those for January and February, which are poor. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--39 years, 125 ft³/s (3.540 m³/s), 14.63 in/yr (372 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 52,000 ft³/s (1,470 m³/s) Aug. 20, 1969, gage height, 31.0 ft (9.45 m), from floodmarks, from rating curve extended above 18,000 ft³/s (510 m³/s) on basis of slope-area measurements at gage heights 23.8 ft (7.25 m) and 31.0 ft (9.45 m); minimum, 0.10 ft³/s (0.003 m³/s) Sept. 5-8, 1966; minimum gage height, 0.81 ft (0.247 m) Sept. 8, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s (42 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	2130	*3560	101	12.90	3.932	Oct. 26	1230	2400	68.0	11.48	3.499
Oct. 20	2330	2060	58.3	11.05	3.368						

Minimum discharge, 7.0 ft³/s (0.20 m³/s) Sept. 4-5, gage height, 1.56 ft (0.475 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	211	215	110	94	59	84	84	66	53	23	9.0	8.5
2	375	177	105	96	59	86	89	65	48	21	11	9.0
3	484	161	96	98	60	75	92	71	43	20	16	8.0
4	152	149	94	98	61	81	213	76	38	19	13	7.0
5	98	137	93	97	65	101	416	74	35	18	11	22
6	77	125	150	95	67	89	316	65	40	18	9.8	10
7	65	118	950	97	65	82	203	61	37	17	9.2	13
8	128	112	600	89	64	76	167	65	32	15	8.9	23
9	1790	105	400	85	63	74	142	55	35	16	12	30
10	911	105	275	80	61	71	132	56	35	23	22	25
11	280	101	240	77	60	74	125	54	30	18	14	17
12	203	115	220	76	61	71	115	53	30	18	13	13
13	167	115	200	76	65	342	108	52	29	17	11	11
14	147	105	180	77	69	289	103	50	32	15	14	11
15	132	103	170	78	68	179	98	48	50	14	14	11
16	123	98	160	80	68	144	93	46	40	13	14	13
17	139	95	149	83	69	123	90	45	37	11	14	17
18	135	95	135	84	69	118	86	44	35	11	38	17
19	117	92	130	79	69	112	82	43	33	10	19	16
20	996	90	134	74	68	117	80	41	30	9.6	17	12
21	891	87	135	72	66	110	76	39	29	10	16	11
22	294	87	113	72	68	178	78	38	27	11	17	10
23	286	87	120	71	71	181	76	37	28	11	16	9.6
24	179	84	112	73	92	134	92	37	30	9.6	15	10
25	200	83	115	67	122	118	80	52	32	10	16	10
26	1580	84	125	64	95	108	72	81	38	13	14	12
27	440	88	115	62	93	105	69	50	30	12	13	12
28	271	92	112	60	97	100	68	44	37	9.6	12	11
29	213	200	110	60	---	100	65	43	34	8.5	11	11
30	181	130	98	59	---	95	64	108	26	8.5	10	10
31	280	---	97	59	---	90	---	52	---	8.5	12	---
TOTAL	11465	3445	5843	2432	1996	3701	3572	1705	1053	440.3	441.9	399.1
MEAN	370	115	188	78.5	71.3	119	119	55.0	35.1	14.2	14.3	13.3
MAX	1790	215	950	98	122	342	416	108	53	23	38	30
MIN	65	83	93	59	59	71	64	37	26	8.5	8.9	7.0
CFSM	3.19	.99	1.62	.68	.62	1.03	1.03	.47	.30	.12	.12	.12
IN.	3.68	1.10	1.87	.78	.64	1.19	1.15	.55	.34	.14	.14	.13

CAL YR 1976 TOTAL 58103.0 MEAN 159 MAX 1910 MIN 19 CFSM 1.37 IN 18.63
WTR YR 1977 TOTAL 36496.3 MEAN 100 MAX 1790 MIN 7.0 CFSM .86 IN 11.70

02030500 SLATE RIVER NEAR ARVONIA, VA

LOCATION.--Lat 37°42'10", long 78°22'40", Buckingham County, Hydrologic Unit 02080203, on left bank 100 ft (30 m) upstream from Bumpers Bridge on State Highway 676, 1.8 mi (2.9 km) northwest of Arvonia, 2.9 mi (4.7 km) upstream from Hunts Creek, and 3.8 mi (6.1 km) upstream from mouth.

DRAINAGE AREA.--226 mi² (585 km²).

PERIOD OF RECORD.--April 1926 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1928-29, 1932, 1933-34(M), 1935. WSP 2104: 1928(M), 1935-37(M), 1940(M), 1944(M), 1949(M), 1955(M), drainage area. WDR VA-72: 1935, 1937, 1944, 1949, 1971(M).

GAGE.--Water-stage recorder. Datum of gage is 238.78 ft (72.780 m) above mean sea level (levels by Corps of Engineers). Prior to Feb. 15, 1936, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period of no gage-height record, Nov. 29 to Dec. 29, and for January and February, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--51 years, 229 ft³/s (6.485 m³/s), 13.76 in/yr (350 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,200 ft³/s (1,200 m³/s) June 22, 1972, gage height, 25.10 ft (7.650 m), from high-water mark in gage house, from rating curve extended above 5,900 ft³/s (170 m³/s) on basis of slope-area measurement of peak flow; minimum, 2.0 ft³/s (0.057 m³/s) Sept. 28 to Oct. 2, 1930; minimum gage height, 1.35 ft (0.411 m) Sept. 12, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,100 ft³/s (59 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 2	1900	4020	114	11.15	3.399
Oct. 9	1330	4240	120	11.43	3.484
Oct. 20	2000	*4890	138	12.19	3.716
Oct. 26	1300	2790	79.0	9.33	2.844
Dec. 7	Unknown	2490	70.5	8.87	2.704

Minimum discharge, 18 ft³/s (0.51 m³/s) July 31-Aug. 1, Aug. 8-9, gage height, 2.01 ft (0.613 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	499	333	280	156	132	181	146	110	92	45	20	25
2	1470	227	225	147	130	162	146	111	92	41	25	25
3	2330	198	200	195	142	152	159	118	79	38	40	26
4	381	186	175	164	170	152	356	131	71	36	31	24
5	195	173	163	158	200	171	1330	178	67	35	26	25
6	144	160	155	157	168	164	956	199	66	34	23	26
7	117	153	1600	160	154	170	380	149	69	33	21	24
8	136	149	700	150	148	157	275	129	67	31	19	94
9	2960	141	400	159	140	145	229	123	65	29	45	112
10	2320	140	285	160	146	142	202	103	73	28	53	102
11	335	139	260	170	157	139	190	99	68	93	35	71
12	208	151	300	165	170	138	181	98	61	50	30	47
13	166	190	265	157	184	191	172	96	59	53	26	39
14	144	167	225	148	200	234	164	92	59	54	30	35
15	126	155	210	285	174	175	158	90	72	41	50	33
16	115	150	230	324	162	157	153	84	81	34	42	32
17	183	142	200	240	148	145	147	82	76	30	97	41
18	338	140	180	220	132	141	143	81	75	27	168	51
19	197	137	170	190	155	145	140	79	62	25	82	42
20	2240	135	200	172	149	188	137	78	55	23	46	36
21	3790	132	260	158	143	304	132	76	50	21	37	33
22	679	129	210	145	136	536	130	74	46	21	44	29
23	302	125	180	135	138	716	128	72	52	23	44	28
24	230	122	165	126	159	318	133	72	69	21	38	28
25	238	123	160	130	264	235	148	91	69	20	43	28
26	2350	123	315	125	202	200	129	303	72	21	41	28
27	823	129	240	122	183	182	121	159	73	23	36	29
28	339	140	210	133	207	173	118	108	61	23	32	28
29	252	950	194	200	---	168	115	91	56	21	30	27
30	216	600	175	170	---	163	111	83	50	19	29	25
31	299	---	168	147	---	159	---	84	---	18	27	---
TOTAL	24122	5939	8700	5268	4593	6403	7029	3443	2007	1011	1310	1193
MEAN	778	198	281	170	164	207	234	111	66.9	32.6	42.3	39.8
MAX	3790	950	1600	324	264	716	1330	303	92	93	168	112
MIN	115	122	155	122	130	138	111	72	46	18	19	24
CFSM	3.44	.88	1.24	.75	.73	.92	1.04	.49	.30	.14	.19	.18
IN.	3.97	.98	1.43	.87	.76	1.05	1.16	.57	.33	.17	.22	.20

CAL YR 1976 TOTAL 99448 MEAN 272 MAX 4200 MIN 24 CFSM 1.20 IN 16.37
WTR YR 1977 TOTAL 71018 MEAN 195 MAX 3790 MIN 18 CFSM .86 IN 11.69

02032680 NORTH FORK RIVANNA RIVER NEAR PROFFIT, VA

LOCATION.--Lat 38°05'16", long 78°24'44", Albemarle County, Hydrologic Unit 02080204, on left bank 50 ft (15 m) downstream from bridge on State Highway 649, 1.9 mi (3.1 km) southeast of Proffit, and 2.2 mi (3.5 km) upstream from confluence with South Fork.

DRAINAGE AREA.--176 mi² (456 km²).

PERIOD OF RECORD.--April 1970 to current year.

GAGE.--Water-stage recorder. Datum of gage is 323.43 ft (98.581 m) above mean sea level.

REMARKS.--Records good except those for January and February, which are poor. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--7 years, 274 ft³/s (7.760 m³/s), 21.14 in/yr (537 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,800 ft³/s (901 m³/s) June 21, 1972, gage height, 30.4 ft (9.27 m), from floodmarks, from rating curve extended above 5,000 ft³/s (140 m³/s): minimum daily, 2.0 ft³/s (0.057 m³/s) Aug. 29, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s (42 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 2	2330	1800	51.0	8.83	2.691	Oct. 26	0830	3870	110	13.38	4.078
Oct. 9	1930	*10500	297	19.11	5.825	Dec. 7	1500	2360	66.8	10.23	3.118
Oct. 20	2200	2640	74.8	10.98	3.347						

Minimum daily discharge, 2.0 ft³/s (0.057 m³/s) Aug. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	130	285	262	109	83	110	115	74	39	11	3.6	4.7
2	522	225	156	108	84	102	115	73	40	9.0	3.8	3.4
3	732	198	140	110	86	96	119	78	33	8.0	3.8	7.0
4	202	186	131	110	87	106	168	81	28	7.0	34	13
5	130	170	125	112	89	140	603	132	25	7.0	12	5.0
6	98	156	122	110	88	126	465	92	27	6.5	9.5	4.6
7	83	147	1280	102	86	121	310	76	28	5.4	8.0	5.6
8	171	142	780	96	84	112	255	72	24	5.4	7.0	5.8
9	5090	132	390	98	83	105	285	63	24	5.6	5.4	6.5
10	2250	131	285	100	82	101	182	58	28	14	6.3	12
11	528	126	255	96	86	97	168	58	24	9.5	4.8	6.5
12	310	136	265	90	89	96	153	57	22	8.0	3.8	5.2
13	235	138	225	92	93	636	143	56	22	8.0	3.7	4.8
14	187	125	190	93	94	644	136	52	34	6.5	3.6	4.4
15	156	122	186	94	92	375	128	51	72	5.6	3.6	3.2
16	139	118	198	100	92	265	122	46	46	5.0	3.7	4.6
17	139	114	178	108	86	205	115	44	36	4.8	4.4	7.0
18	140	112	159	102	84	184	110	43	36	4.6	3.0	4.8
19	122	109	150	95	81	168	108	42	31	4.2	2.8	3.8
20	1000	106	153	90	80	157	101	41	25	4.0	2.6	3.4
21	1160	104	154	85	81	146	97	37	21	4.4	2.6	3.0
22	420	101	131	84	82	244	95	34	17	7.5	3.0	3.2
23	265	104	136	84	85	298	92	34	18	6.0	4.5	5.0
24	225	106	125	84	105	225	98	32	19	4.4	3.9	2.4
25	396	106	128	83	157	190	92	41	20	4.4	3.3	3.6
26	2550	106	138	82	129	174	87	49	25	6.0	3.6	5.0
27	692	110	129	80	125	156	84	38	22	5.0	2.7	6.0
28	420	110	126	80	124	152	81	33	19	5.2	2.5	6.0
29	298	338	126	80	---	145	80	30	17	6.5	2.0	4.2
30	245	390	114	79	---	135	78	35	13	5.4	2.6	4.0
31	376	---	110	80	---	125	---	36	---	4.6	20	---
TOTAL	19411	4553	7047	2916	2617	5936	4705	1688	835	198.5	180.1	157.7
MEAN	626	152	227	94.1	93.5	191	157	54.5	27.8	6.40	5.81	5.26
MAX	5090	390	1280	112	157	644	603	132	72	14	34	13
MIN	83	101	110	79	80	96	78	30	13	4.0	2.0	2.4
CFSM	3.56	.86	1.29	.54	.53	1.09	.89	.31	.16	.04	.03	.03
IN.	4.10	.96	1.49	.62	.55	1.25	.99	.36	.18	.04	.04	.03

CAL YR 1976 TOTAL 80281.0 MEAN 219 MAX 5090 MIN 17 CFSM 1.24 IN 16.97
WTR YR 1977 TOTAL 50244.3 MEAN 138 MAX 5090 MIN 2.0 CFSM .78 IN 10.62

02034000 RIVANNA RIVER AT PALMYRA, VA

LOCATION.--Lat 37°51'28", long 78°15'58", Fluvanna County, Hydrologic Unit 02080204, on left bank 10 ft (3 m) upstream from bridge on U.S. Highway 15 at Palmyra, 0.5 mi (0.8 km) upstream from Cunningham Creek, and 15 mi (24 km) upstream from mouth.

DRAINAGE AREA.--664 mi² (1,720 km²).

PERIOD OF RECORD.--October 1933 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 802: 1936(M). WSP 852: 1937. WSP 892: 1934-35. WSP 1303: 1945-46(M). WSP 1503: 1956. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 210.39 ft (64.127 m) above mean sea level. Prior to Oct. 24, 1942, water-stage recorder at site 200 ft (60 m) downstream at same datum. Oct. 24, 1942, to Dec. 18, 1947, nonrecording gage 10 ft (3 m) downstream at same datum.

REMARKS.--Records good except those for winter periods, which are fair. Some diurnal fluctuation at times mostly at low and medium flow by South Fork Rivanna River reservoir. National Weather Service gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--44 years, 707 ft³/s (20.02 m³/s), 14.46 in/yr (367 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 86,000 ft³/s (2,440 m³/s) Aug. 20, 1969, gage height, 39.85 ft (12.146 m), from rating curve extended above 76,000 ft³/s (2,200 m³/s) on basis of contracted-opening measurement of peak flow and velocity-area study; minimum, 5.2 ft³/s (0.15 m³/s) Sept. 9-11, 1966, gage height, 2.13 ft (0.649 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,000 ft³/s (170 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 10	0700	*18100	513	22.41	6.831	Oct. 26	1400	10200	289	16.31	4.971
Oct. 21	0130	9540	270	15.64	4.767	Dec. 7	2030	6550	185	12.29	3.746

Minimum daily discharge, 17 ft³/s (0.48 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	868	1370	1030	388	235	376	434	295	193	76	56	94
2	1880	1030	740	372	230	346	418	290	197	64	89	56
3	4050	876	627	416	290	320	440	320	186	53	53	38
4	1320	796	565	393	360	323	696	331	155	47	280	47
5	720	712	539	397	390	430	2100	393	138	45	129	94
6	471	632	492	402	350	444	2270	399	135	44	78	56
7	372	574	3620	403	300	403	1490	331	141	44	62	33
8	529	537	3650	369	270	375	1210	348	126	62	53	60
9	8680	492	2000	380	285	347	1010	276	120	78	58	42
10	13700	473	1450	408	305	335	860	243	126	123	66	60
11	2350	461	1240	393	320	333	770	230	120	69	56	49
12	1400	491	1200	280	328	324	690	226	108	69	49	33
13	995	543	1120	330	355	1270	615	222	99	60	45	27
14	767	479	920	390	372	2760	576	217	105	56	44	25
15	609	453	832	449	344	1620	538	209	186	45	44	25
16	514	438	824	523	322	1170	501	197	239	44	45	26
17	512	417	782	260	289	893	474	186	172	40	44	36
18	547	407	682	310	262	755	455	182	141	58	47	45
19	454	399	608	370	276	718	442	179	129	45	44	32
20	3010	390	594	350	297	625	423	179	117	40	40	29
21	5840	374	661	330	285	610	405	168	99	38	36	24
22	1990	368	527	310	267	829	387	158	89	66	33	21
23	1300	353	494	450	270	1300	376	151	78	64	32	19
24	1020	316	476	399	303	982	399	151	78	42	38	18
25	1020	334	435	347	550	821	399	182	86	38	30	20
26	7170	335	510	310	476	707	359	271	99	42	33	23
27	3130	344	490	335	417	624	342	226	108	44	25	20
28	1820	351	463	360	415	575	331	182	111	38	22	21
29	1330	1090	460	280	---	559	326	161	123	35	21	20
30	1090	1580	432	225	---	517	305	266	97	33	21	17
31	1470	---	417	245	---	478	---	213	---	35	71	---
TOTAL	70928	17415	28880	11174	9163	22169	20041	7382	3901	1637	1744	1110
MEAN	2288	581	932	360	327	715	668	238	130	52.8	56.3	37.0
MAX	13700	1580	3650	523	550	2760	2270	399	239	123	280	94
MIN	372	316	417	225	230	320	305	151	78	33	21	17
CFSM	3.45	.88	1.40	.54	.49	1.08	1.01	.36	.20	.08	.09	.06
IN.	3.97	.98	1.62	.63	.51	1.24	1.12	.41	.22	.09	.10	.06

CAL YR 1976 TOTAL 307242 MEAN 839 MAX 13700 MIN 50 CFSM 1.26 IN 17.21
WTR YR 1977 TOTAL 195544 MEAN 536 MAX 13700 MIN 17 CFSM .81 IN 10.96

02034500 WILLIS RIVER AT FLANAGAN MILLS, VA

LOCATION.--Lat 37°40'00", long 78°10'00", Cumberland County, Hydrologic Unit 02080205, on left bank 15 ft (5 m) upstream from bridge on State Highway 690, 0.4 mi (0.6 km) east of Flanagan Mills, 6.9 mi (11.1 km) upstream from mouth, and 7.7 mi (12.4 km) downstream from Reynolds Creek.

DRAINAGE AREA.--262 mi^2 (679 km^2).

PERIOD OF RECORD.--April 1926 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 872: 1936-37. WSP 892: 1928-29, 1932-34(M). WSP 972: 1937, 1940. WSP 1203: 1929. WSP 1303: 1928-30(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 178.98 ft (54.553 m) above mean sea level (levels by Corps of Engineers). Prior to Jan. 3, 1935, nonrecording gage at site 1,300 ft (396 m) upstream at same datum.

REMARKS.--Records good. Regulation of flow from Trice Lake 0.4 mi (0.6 km) upstream, total capacity, about 1,100 acre-ft (1.36 hm^3), tributary to Willis River, slightly affects flow at gage. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--51 years, 247 ft^3/s (6.995 m^3/s), 12.80 in/yr (325 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 24,000 ft^3/s (680 m^3/s) June 22, 1972; maximum gage height, 29.8 ft (9.08 m) June 22, 1972, from floodmarks (backwater from James River); minimum discharge, 1.5 ft^3/s (0.042 m^3/s) Sept. 13, 14, 1966, gage height, 2.26 ft (0.689 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,810 ft^3/s (51.3 m^3/s) at 0300 hours Oct. 23, gage height, 13.30 ft (4.054 m), no other peak above base of 1,700 ft^3/s (48 m^3/s); minimum, 8.4 ft^3/s (0.24 m^3/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	137	465	870	210	167	254	181	105	81	41	22	14
2	403	406	708	181	169	222	176	104	78	36	20	13
3	1030	315	435	180	168	198	204	141	74	32	22	11
4	654	267	308	185	170	186	364	278	76	29	21	14
5	422	228	254	192	190	186	810	336	105	29	20	14
6	256	210	228	192	210	186	930	308	71	25	20	13
7	174	186	618	192	190	210	1010	228	62	24	19	28
8	137	176	1010	186	178	222	598	192	56	22	18	30
9	836	176	991	180	178	210	392	161	52	21	18	46
10	1550	161	890	180	181	186	301	131	53	20	21	72
11	1470	161	574	181	186	176	254	118	53	23	23	57
12	1110	161	450	188	204	166	228	106	50	37	21	43
13	587	192	420	195	216	176	210	100	48	52	22	34
14	306	192	357	210	241	254	192	94	46	48	35	28
15	208	186	308	392	291	248	181	90	51	34	32	24
16	164	176	287	510	241	204	171	82	58	29	26	21
17	191	161	274	465	204	176	166	77	64	25	32	20
18	352	161	254	378	181	166	161	74	74	22	50	20
19	352	151	234	322	176	166	151	71	70	20	35	19
20	640	146	228	280	181	263	146	69	58	20	25	18
21	1520	141	287	241	181	435	141	66	48	22	21	16
22	1750	136	280	210	171	548	136	63	43	22	20	15
23	1720	131	254	192	171	713	131	60	42	20	20	14
24	1150	126	234	181	186	606	131	59	50	19	24	13
25	694	126	210	175	280	450	136	72	52	17	28	12
26	1130	122	278	170	315	322	136	163	56	16	30	11
27	1170	122	357	169	280	267	122	210	58	18	26	11
28	1010	131	329	165	267	234	118	176	56	17	22	10
29	662	548	294	164	---	216	113	126	51	16	19	9.3
30	361	890	260	163	---	204	110	97	46	16	17	8.7
31	364	---	228	165	---	198	---	84	---	19	15	---
TOTAL	22510	6750	12709	6994	5773	8248	8100	4041	1782	791	744	659.0
MEAN	726	225	410	226	206	266	270	130	59.4	25.5	24.0	22.0
MAX	1750	890	1010	510	315	713	1010	336	105	52	50	72
MIN	137	122	210	163	167	166	110	59	42	16	15	8.7
CFSM	2.77	.86	1.57	.86	.79	1.02	1.03	.50	.23	.10	.09	.08
IN.	3.20	.96	1.80	.99	.82	1.17	1.15	.57	.25	.11	.11	.09

CAL YR 1976 TOTAL 103050.0 MEAN 282 MAX 2100 MIN 21 CFSM 1.08 IN 14.63
WTR YR 1977 TOTAL 79101.0 MEAN 217 MAX 1750 MIN 8.7 CFSM .83 IN 11.23

02035000 JAMES RIVER AT CARTERSVILLE, VA
(National stream-quality accounting network station)

LOCATION.--Lat 37°40'15", long 78°05'10", Goochland County, Hydrologic Unit 02080205, on left bank 200 ft (61 m) downstream from bridge on State Highway 45 between Pemberton and Cartersville, 1.8 mi (2.9 km) downstream from Willis River, and at mile 156.4 (251.6 km).

DRAINAGE AREA.--6,257 mi² (16,206 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1898 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1936(M). WSP 1203: 1901-2(M), 1923-25(M), 1928(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 163.90 ft (49.957 m) above mean sea level. Prior to June 4, 1927, nonrecording gage at same site and datum.

REMARKS.--Records good. Moderate diurnal fluctuation caused by powerplants above station. National Weather Service gage-height telemeter and Survey satellite telemeter at station.

AVERAGE DISCHARGE.--79 years, 7,017 ft³/s (198.7 m³/s), 15.23 in/yr (387 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 362,000 ft³/s (10,300 m³/s) June 22, 1972, gage height, 37.87 ft (11.543 m), from floodmarks, from rating curve extended above 160,000 ft³/s (4,500 m³/s) on basis of slope-conveyance study; minimum, 316 ft³/s (8.95 m³/s) Sept. 13, 14, 1966, gage height, 0.02 ft (0.006 m); minimum daily, 330 ft³/s (9.35 m³/s) Sept. 14, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 40,000 ft³/s (1,100 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 10	1730	*73900	2090	20.60	6.279	Apr. 7	0900	65800	1860	19.18	5.846
Oct. 26	1900	46500	1320	15.41	4.697						

Minimum discharge, 523 ft³/s (14.8 m³/s) Aug. 10, gage height, 0.26 ft (0.079 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3490	12100	7150	4240	3040	7350	5950	3790	2420	1700	777	775
2	6220	12600	5640	3700	2670	7070	5650	3750	2710	1600	847	900
3	16300	12600	5800	3690	2880	6440	5330	3740	2650	1390	868	924
4	8360	10300	5280	3690	3470	5930	5610	4010	2340	1390	842	732
5	4300	9110	5010	3800	3750	5520	12000	4310	2050	1260	1240	700
6	3370	7830	4590	4090	3520	5650	43400	4200	1950	1140	962	1080
7	2860	7030	8860	4090	3240	6780	60300	3930	1880	1190	876	1120
8	2400	6310	24100	3860	2960	6750	28500	4090	2450	1070	776	987
9	18600	5790	25800	3600	2960	6280	18100	3820	1790	1090	612	1670
10	68300	5430	19400	3800	3150	5620	14400	3590	1650	1310	555	2130
11	54100	4960	14100	3700	3510	5460	11900	3470	1710	1200	677	1980
12	21500	5080	11600	2670	3490	5010	10300	3220	1870	1260	855	1880
13	11700	5270	10600	3230	3870	4860	9510	3270	1610	1470	747	1380
14	8330	5160	9560	3340	3740	14900	8110	3100	1730	1350	963	1120
15	6200	4860	8980	4000	3850	31500	7420	2800	1770	1240	995	962
16	4850	4430	8430	4440	4010	20200	6970	2880	2250	1370	1230	1160
17	4260	4420	8050	4400	4280	14000	6420	2600	2060	1360	1730	924
18	4860	4300	7480	3280	4260	11100	5980	2770	2190	1160	1410	999
19	4480	4090	6620	3000	4020	9500	5670	2650	2570	945	1570	1060
20	8410	4080	6240	3210	3880	8740	5360	2400	1800	902	1520	937
21	31500	3910	6160	3530	3800	9040	5160	2440	1730	999	1080	974
22	14200	3940	6430	3240	3620	9380	5450	2450	1670	937	1110	839
23	13400	3750	5670	3520	3700	12600	4900	2230	1580	897	1010	785
24	10800	3670	5370	3490	3500	11200	4770	2200	1560	921	1190	775
25	8450	3810	4990	3740	4320	13100	5000	2430	1890	840	1160	796
26	28800	3600	5240	3320	4700	10900	4630	3280	1590	768	1080	888
27	33700	3540	5180	3400	8740	9500	4400	3520	1840	816	999	1010
28	26300	3480	5180	3430	8900	8240	4230	3000	1720	805	851	753
29	16800	5440	4930	3410	---	7430	4050	2710	1620	766	949	785
30	12600	10100	4760	3090	---	6880	3900	2410	1570	759	1110	732
31	11400	---	4470	2950	---	6570	---	2640	---	750	962	---
TOTAL	470840	180990	261670	110950	111830	293500	323370	97700	58220	34655	32053	31757
MEAN	15190	6033	8441	3579	3994	9468	10780	3152	1941	1118	1034	1059
MAX	68300	12600	25800	4440	8900	31500	60300	4310	2710	1700	1910	2130
MIN	2400	3480	4470	2670	2670	4860	3900	2200	1560	750	555	700
CFSM	2.43	.96	1.35	.57	.64	1.51	1.72	.50	.31	.18	.17	.17
IN.	2.80	1.08	1.56	.66	.66	1.74	1.92	.58	.35	.21	.19	.19

CAL YR 1976 TOTAL 2658673 MEAN 7264 MAX 68300 MIN 865 CFSM 1.16 IN 15.81
WTR YR 1977 TOTAL 2007535 MEAN 5500 MAX 68300 MIN 555 CFSM .88 IN 11.94

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1930, 1948, 1967 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1968 to January 1976.
WATER TEMPERATURES: April 1968 to January 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	CHEMICAL OXYGEN DEMAND (HIGH LEVEL) (MG/L)	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	FECAL COLIFORM .7UM-MF (COL./100 ML)	FECAL STREPTOCOCCI KF AGAR (COL. PER 100 ML)	BICARBONATE (HCO3) (MG/L)
OCT												
04...	0800	10300	68	7.4	17.0	50	8.4	14	1.0	--	2400	--
26...	1330	33200	75	7.8	12.0	75	10.8	16	.4	--	2200	--
26...	1400	40200	75	7.8	12.0	--	--	--	--	--	--	--
NOV												
02...	0815	11600	92	7.4	9.0	15	11.1	8	.4	<160	<160	--
02...	0900	11800	92	7.4	9.0	--	--	--	--	<160	<160	--
DEC												
02...	0830	5780	85	6.4	3.0	10	13.0	10	1.2	200	210	--
JAN												
10...	0930	3810	120	8.4	.0	3	14.1	3	1.6	220	<140	46
10...	0945	3780	120	8.4	.0	4	--	--	--	220	<140	42
25...	0830	3840	140	6.8	1.0	4	15.0	6	1.6	31	86	--
FEB												
07...	0830	3340	125	7.6	.0	6	15.2	7	.8	20	48	--
07...	0930	3250	125	7.6	.0	--	--	--	--	20	48	--
22...	0800	3420	155	6.6	3.5	3	13.4	8	.6	20	27	--
MAR												
07...	0830	6280	100	7.0	9.5	5	11.3	2	.8	39	290	39
07...	0900	6280	100	7.0	9.5	5	--	--	--	39	290	38
20...	1130	8100	90	7.1	11.0	6	10.9	12	.9	380	410	--
APR												
06...	1330	49200	140	7.1	14.5	15	10.4	28	2.2	4200	3900	--
19...	1215	5640	145	7.5	20.0	3	9.9	6	1.5	28	3300	--
MAY												
04...	1230	6140	150	7.2	21.5	5	8.8	12	3.3	32	34	--
18...	1245	2080	175	8.3	25.0	3	6.6	12	1.0	20	6200	--
JUN												
01...	1200	2340	160	7.6	23.0	6	8.8	15	1.6	20	740	--
15...	1230	1660	197	7.7	23.5	2	9.0	--	.8	190	19	74
JUL												
05...	1200	1200	235	7.2	29.0	5	7.0	10	.2	19	89	--
19...	1300	949	260	7.7	32.5	1	7.5	15	--	56	32	--
AUG												
09...	1300	605	330	7.3	30.5	1	6.6	15	.2	29	50	--
22...	1230	1080	238	7.6	25.5	--	7.8	--	.0	<16	22	--
SEP												
06...	1230	1060	330	8.5	29.0	2	7.6	25	1.4	41	<2	94
21...	1300	1040	348	8.3	27.5	2	8.0	15	1.0	--	18	--

< Actual valu is known to be less than the value shown.

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CARBONATE (CO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL NITROGEN (NO3) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)
OCT											
04...	--	--	--	--	60	.43	.09	.61	1.0	4.6	.14
26...	--	--	--	--	91	.42	.08	.89	1.3	5.8	.28
26...	--	--	--	--	--	.29	--	.82	1.1	4.9	.22
NOV											
02...	--	--	--	--	70	.34	.04	.24	.58	2.6	.07
02...	--	--	--	--	--	.34	--	.23	.57	2.5	.01
DEC											
02...	--	--	--	--	62	.34	.02	.25	.59	2.6	.07
JAN											
10...	0	.3	9.2	12	86	.42	.11	.30	.72	3.2	.05
10...	0	.3	8.9	12	80	.42	--	.13	.55	2.4	.05
25...	--	--	--	--	174	.46	.14	.30	.76	3.4	.09
FEB											
07...	--	--	--	--	176	.41	.11	.30	.71	3.1	.08
07...	--	--	--	--	--	.40	--	.31	.71	3.1	.08
22...	--	--	--	--	100	.38	.08	.32	.70	3.1	.09
MAR											
07...	0	6.2	7.6	5.6	66	.40	.10	.25	.65	2.9	.05
07...	0	6.1	7.1	5.0	66	.41	--	.39	.80	3.5	.06
20...	--	--	--	--	66	.40	.01	.46	.86	3.8	.06
APR											
06...	--	--	--	--	94	.24	.04	.65	.89	3.9	.25
19...	--	--	--	--	81	.14	.03	.24	.38	1.7	.08
MAY											
04...	--	--	--	--	92	.05	.03	.74	.79	3.5	.07
18...	--	--	--	--	117	.00	.03	.36	.36	1.6	.08
JUN											
01...	--	--	--	--	109	.01	.08	.29	.30	1.3	.08
15...	0	2.4	13	14	122	.06	.06	.13	.19	.84	.07
JUL											
05...	--	--	--	--	148	.03	.04	.45	.48	2.1	.13
13...	--	--	--	--	148	.04	.06	.30	.34	1.5	.14
AUG											
04...	--	--	--	--	139	.15	.05	.37	.52	2.3	.17
22...	--	--	--	--	--	--	--	--	--	--	--
SEP											
06...	0	.5	27	33	185	.09	.05	.32	.41	1.8	.19
21...	--	--	--	--	181	.27	.02	.35	.62	2.7	.16

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL ARSENIC (AS) (UG/L)	SUS-PENDED ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	SUS-PENDED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	SUS-PENDED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	SUS-PENDED COBALT (CO) (UG/L)
OCT											
04...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
NOV											
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
DEC											
02...	--	--	--	--	--	--	--	--	--	--	--
JAN											
10...	--	--	--	--	--	--	--	--	--	--	--
10...	1	0	1	0	0	0	<10	<9	1	0	0
25...	--	--	--	--	--	--	--	--	--	--	--
FEB											
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
MAR											
07...	--	--	--	--	--	--	--	--	--	--	--
07...	0	0	0	0	0	0	20	20	0	0	0
28...	--	--	--	--	--	--	--	--	--	--	--
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
MAY											
04...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
JUN											
01...	--	--	--	--	--	--	--	--	--	--	--
15...	4	1	3	0	0	0	<10	<10	0	0	0
JUL											
05...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
AUG											
09...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
SEP											
06...	1	0	1	0	0	0	10	10	0	0	0
21...	--	--	--	--	--	--	--	--	--	--	--

< Actual value is known to be less than the value shown.

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	SUS-PENDED COPPER (CU) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	SUS-PENDED LEAD (PB) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	SUS-PENDED MAN-GANESE (MN) (UG/L)
OCT											
04...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
NOV											
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
DEC											
02...	--	--	--	--	--	--	--	--	--	--	--
JAN											
19...	--	--	--	--	--	--	--	--	--	--	--
19...	0	2	1	1	480	140	4	0	5	30	20
25...	--	--	--	--	--	--	--	--	--	--	--
FEB											
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
MAR											
07...	--	--	--	--	--	--	--	--	--	--	--
07...	0	2	2	0	630	80	8	5	3	20	10
29...	--	--	--	--	--	--	--	--	--	--	--
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
MAY											
04...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
JUN											
01...	--	--	--	--	--	--	--	--	--	--	--
15...	0	3	0	3	410	100	9	9	0	50	40
JUL											
05...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
AUG											
09...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
SEP											
04...	0	3	0	3	160	70	0	0	0	60	30
21...	--	--	--	--	--	--	--	--	--	--	--

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	SUS-PENDED MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	SUS-PENDED SELE-NIUM (SE) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	SUS-PENDED ZINC (ZN) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
OCT											
04...	--	--	--	--	--	--	--	--	--	--	5.8
26...	--	--	--	--	--	--	--	--	--	--	6.0
26...	--	--	--	--	--	--	--	--	--	--	--
NOV											
02...	--	--	--	--	--	--	--	--	--	--	3.9
02...	--	--	--	--	--	--	--	--	--	--	--
DEC											
02...	--	--	--	--	--	--	--	--	--	--	4.2
JAN											
10...	--	--	--	--	--	--	--	--	--	--	4.1
10...	10	.1	.1	.0	0	0	0	0	0	10	--
25...	--	--	--	--	--	--	--	--	--	--	3.0
FEB											
07...	--	--	--	--	--	--	--	--	--	--	2.2
07...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	2.2
MAR											
07...	--	--	--	--	--	--	--	--	--	--	3.1
07...	10	.1	.1	.0	0	0	0	40	30	10	3.7
29...	--	--	--	--	--	--	--	--	--	--	4.2
APR											
06...	--	--	--	--	--	--	--	--	--	--	6.5
19...	--	--	--	--	--	--	--	--	--	--	4.8
MAY											
04...	--	--	--	--	--	--	--	--	--	--	6.3
18...	--	--	--	--	--	--	--	--	--	--	5.3
JUN											
01...	--	--	--	--	--	--	--	--	--	--	6.4
15...	10	.0	.0	.0	0	0	0	10	10	0	5.0
JUL											
05...	--	--	--	--	--	--	--	--	--	--	6.4
19...	--	--	--	--	--	--	--	--	--	--	--
AUG											
09...	--	--	--	--	--	--	--	--	--	--	6.5
22...	--	--	--	--	--	--	--	--	--	--	--
SEP											
06...	10	.0	.0	.0	0	0	0	0	0	0	6.8
21...	--	--	--	--	--	--	--	--	--	--	7.5

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL PHYTO-PLANK-TON (CELLS PER ML)	CHLORO-PHYLL A (UG/L)	CHLORO-PHYLL B (UG/L)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
OCT						
04...	--	.000	.000	108	2900	--
26...	--	6.52	.000	116	10300	--
26...	1400	--	--	--	--	--
NOV						
02...	--	.000	.000	35	1320	--
02...	430	--	--	35	1120	85
DEC						
02...	--	.000	.000	15	210	--
JAN						
10...	--	.000	.000	5	51	--
10...	680	--	--	6	61	70
25...	--	3.28	.732	5	252	--
FEB						
07...	--	--	--	6	36	--
07...	880	--	--	5	66	100
22...	--	.776	.000	14	113	--
MAR						
07...	--	--	--	12	190	--
07...	4700	--	--	13	220	98
20...	--	--	--	23	501	--
APR						
06...	--	4.45	.656	260	30400	85
19...	--	4.77	.723	25	351	--
MAY						
04...	--	--	--	26	201	--
18...	29000	14.6	1.47	57	631	57
JUN						
01...	--	22.3	4.13	33	169	--
15...	15000	3.60	1.26	12	96	100
JUL						
05...	--	2.40	2.10	6	14	--
19...	710	.000	.000	6	15	100
AUG						
09...	69	.000	.000	5	4.2	--
22...	--	.075	.000	11	32	--
SEP						
06...	120	1.96	.000	3	8.6	100
21...	--	.000	.000	4	11	--

JAMES RIVER BASIN

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

PHYTOPLANKTON

DATE TIME	OCT 26,76 1400	NOV 2,76 0900	JAN 10,77 0945	FEB 7,77 0930	MAR 7,77 0900
TOTAL CELLS/ML	1400	630	480	880	4780
DIVERSITY: DIVISION	0.7	1.1	1.6	1.3	0.5
.CLASS	0.7	1.1	1.7	1.3	0.5
..ORDER	0.7	1.1	1.9	1.6	0.7
...FAMILY	1.0	2.0	2.6	2.2	2.6
....GENUS	1.6	2.0	3.1	2.2	2.6

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	*	--	*	--	*	--	*	--	*
...COELASTRACEAE										
....COELASTRUM	--	*	--	*	--	*	--	*	--	*
...MICRACTINIACEAE										
....MICRACTINIUM	--	*	--	*	--	*	--	*	--	*
...OOCYSTACEAE										
....ANKISTRODESMUS	--	*	--	*	11	2	17	2	81	2
....CLOSTERIDIUM	--	*	--	*	--	*	--	*	--	*
....DICTYOSPHAERIUM	--	*	96	*	--	*	--	*	--	*
....KIRCHNERIELLA	--	*	--	*	--	*	--	*	--	*
....OOCYSTIS	--	*	--	*	--	*	17	2	--	*
....SELENASTRUM	--	*	--	*	6	1	--	*	--	*
....TETRAEDRON	--	*	--	*	--	*	--	*	--	*
...SCENEDESMACEAE										
....ACTINASTRUM	--	*	--	*	--	*	--	*	--	*
....SCENEDESMUS	--	*	--	*	15	3	--	*	--	*
....TETRASTRUM	--	*	--	*	--	*	--	*	--	*
..TETRASPORALES										
...COCCOMYXACEAE										
....ELAKATOTHRIX	--	*	--	*	--	*	--	*	--	*
...PALMELLACEAE										
....GLOEOCYSTIS	--	*	--	*	--	*	--	*	--	*
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	--	*	--	*	11	2	8	1	356	7
...VOLVOCACEAE										
....PANDORINA	--	*	--	*	--	*	--	*	--	*
..ZYGNEMATALES										
...DESMIDIACEAE										
....CLOSTERIUM	--	*	--	*	--	*	--	*	--	*
....SPONDYLOSIUM	--	*	--	*	6	1	--	*	54	1
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	--	*	--	*	6	1	8	1	--	*
....MELOSIRA	--	*	--	*	7	2	--	*	27	1
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	24	2	--	*	--	*	8	0	--	*
....COCCONEIS	--	*	9	1	--	*	--	*	--	*
....RHOICOSPHENIA	--	*	--	*	--	*	--	*	--	*
...CYMBELLACEAE										
....CYMBELLA	24	2	--	*	6	1	25	3	540	11
....EPITHEMIA	16	1	--	*	--	*	--	*	--	*
...DIATOMACEAE										
....DIATOMA	--	*	--	*	--	*	--	*	81	2
...FRAGILARIACEAE										
....ASTERIONELLA	--	*	--	*	--	*	8	1	27	1
....FRAGILARIA	--	*	--	*	--	*	--	*	1700#	36
....SYNEDRA	--	*	--	*	19	4	62	7	--	*
...GOMPHONEMATACEAE										
....GOMPHONEMA	--	*	3	1	22	5	170#	19	430	9
...NAVICULACEAE										
....NAVICULA	--	*	--	*	6	1	6	*	--	*

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

PHYTOPLANKTON

DATE TIME	OCT 26,76 1400		NOV 9,76 0900		JAN 18,77 0945		FEB 7,77 0930		MAR 7,77 0900	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
...NAVICULACEAE										
....GYROSIGMA	--	-	3	1	--	*	--	*	--	-
....NAVICULA	130	1	4	2	26	5	8	1	300	6
...NITZSCHIACEAE										
....NITZSCHIA	56	0	11	3	37	8	56	4	1100#	73
...SURIRELLACEAE										
....SURIRELLA	--	*	--	-	6	1	17	2	--	*
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...OCHROMONADACEAE										
....DINOBRYON	--	*	--	*	69	10	--	*	27	1
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....AGMENELLUM	--	*	--	*	--	*	--	*	--	*
....ANACYSTIS	--	*	--	*	--	*	--	*	--	*
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	--	*	1400#	33	--	*	--	*	--	*
....APHANIZOMENON	--	*	--	*	--	*	--	*	--	*
...OSCILLATORIACEAE										
....LYNGBYA	5200#	37	--	-	1400#	29	--	-	--	*
....OSCILLATORIA	6730#	46	2800#	66	1700#	35	6700#	96	--	*
....PHORMIDIUM	--	*	--	-	--	*	--	-	--	*
EUGLENOPHYTA (EUGLENOIDS)										
.CRYPTOPHYCEAE										
..CRYPTOMONADALES										
...CRYPTOMONADACEAE										
....CRYPTOMONAS	--	*	--	*	--	*	--	*	--	*
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....TRACHELOMONAS	--	*	38	1	6	1	17	1	--	*
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..PERIDINIALES										
...GLENODINIACEAE										
....GLENODINIUM	--	*	--	*	--	*	--	*	--	*

NOTE: # - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

PHYTOPLANKTON

DATE TIME	MAY 18,77 1245	JUN 15,77 1230	JUL 19,77 1300	AUG 9,77 1300	SEP 6,77 1230
TOTAL CELLS/ML	29000	15000	710	69	120
DIVERSITY: DIVISION	1.3	1.0	0.9	1.3	0.9
.CLASS	1.3	1.0	0.9	1.3	0.9
..ORDER	1.6	1.3	1.0	1.7	1.3
...FAMILY	1.9	2.3	1.1	1.7	2.7
....GENUS	2.1	3.0	1.6	1.7	2.7

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	--	-	7	1	--	-	--	-
...COELASTRACEAE										
....COELASTRUM	--	-	1400	12	--	-	--	-	--	-
...MICRACTINIACEAE										
....MICRACTINIUM	1500	5	--	-	--	-	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	2400	8	190	1	--	-	--	-	--	-
....CLOSTERIOPSIS	--	-	*	0	--	-	--	-	--	-
....DICTYOSPHAERIUM	4000	14	1200	8	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	960	6	--	-	--	-	--	-
....OOCYSTIS	210	1	--	-	--	-	--	-	--	-
....SELENASTRUM	*	0	--	-	--	-	--	-	--	-
....TETRAEDRON	--	-	*	0	--	-	--	-	--	-
...SCENEDESMACEAE										
....ACTINASTRUM	*	0	--	-	--	-	--	-	--	-
....SCENEDESMUS	480	2	2400#	16	--	-	11#	16	--	-
....TETRASTRUM	--	-	4000#	27	--	-	--	-	--	-
..TETRASPORALES										
...COCCOMYXACEAE										
....ELAKATOTHRIX	--	-	--	-	--	-	5	7	--	-
...PALMELLACEAE										
....GLOEOCYSTIS	--	-	160	1	--	-	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	*	0	*	0	--	-	--	-	--	-
...VOLVOCACEAE										
....PANDORINA	--	-	540	4	--	-	--	-	--	-
..ZYGNEMATALES										
...DESMIDIACEAE										
....CLOSTERIUM	--	-	*	0	--	-	--	-	--	-
....[illegible]	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	16000#	56	250	2	--	-	5	7	--	-
....MELOSIRA	--	-	680	4	--	-	--	-	36#	30
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	--	-	--	-	--	-	--	-	--	-
....COCCONEIS	--	-	--	-	--	-	--	-	14	12
....RHOICOSPHENIA	--	-	--	-	7	1	--	-	--	-
...CYMBELLACEAE										
....CYMBELLA	*	0	--	-	--	-	--	-	--	-
....EPITHEMIA	--	-	--	-	--	-	--	-	--	-
...DIATOMACEAE										
....DIATOMA	--	-	--	-	--	-	--	-	7	6
...FRAGILARIACEAE										
....ASTERIONELLA	--	-	--	-	--	-	--	-	--	-
....FRAGILARIA	--	-	--	-	--	-	--	-	--	-
....SYNEDRA	*	0	--	-	--	-	--	-	20#	16
...GOMPHONEMATACEAE										
....GOMPHONEMA	--	-	--	-	--	-	--	-	--	-
...MERIDIONACEAE										
....MERIDION	--	-	--	-	--	-	--	-	--	-
...NAVICULACEAE										
....GYROSIGMA	--	-	--	-	--	-	--	-	--	-
....NAVICULA	*	0	*	0	14	2	--	-	14	12

NOTE: # - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

PHYTOPLANKTON

DATE	MAY 18.77		JUN 15.77		JUL 19.77		AUG 9.77		SEP 6.77	
TIME	1245		1230		1300		1300		1230	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
...NITZSCHIACEAE										
....NITZSCHIA	1300	4	--	-	--	-	5	8	14	12
...SURIRELLACEAE										
....SURIRELLA	--	-	--	-	--	-	--	-	--	-
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...OCHROMONADACEAE										
....DINOBRYON	--	-	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....AGMENELLUM	--	-	--	-	160#	23	--	-	--	-
....ANACYSTIS	2100	7	2300#	16	--	-	430#	62	--	-
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	--	-	--	-	--	-	--	-	--	-
....APHANIZOMENON	*	0	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE										
....LYNGBYA	--	-	--	-	--	-	--	-	--	-
....OSCILLATORIA	--	-	--	-	410#	57	--	-	--	-
....PHORMIDIUM	--	-	--	-	120#	16	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.CRYPTOPHYCEAE										
..CRYPTOMONIDALES										
...CRYPTOMONADACEAE										
....CRYPTOMONAS	420	1	--	-	--	-	--	-	--	-
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....TRACHELOMONAS	--	-	--	-	--	-	--	-	14	12
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..PERIDINIALES										
...GLENODINIACEAE										
....GLENODINIUM	--	-	*	0	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

PERIPHYTON

Date	Length of exposure (days)	Biomass (g/m²) Dry weight	Biomass (g/m²) Ash weight	Chlorophyll a (mg/m²)	Chlorophyll b (mg/m²)	Biomass pigment ratio	Sampling method
Jan. 10	38	1897	256	0.02	-	82050	Polyethylene strip
May 18	18	709	551	0.00	0.00	26330	

02036500 FINE CREEK AT FINE CREEK MILLS, VA

LOCATION.--Lat 37°35'52", long 77°49'12", Powhatan County, Hydrologic Unit 02080205, on right bank 75 ft (23 m) downstream from bridge on State Highway 711 at Fine Creek Mills, 0.8 mi (1.3 km) upstream from mouth, and 6.7 mi (10.8 km) northeast of Powhatan.

DRAINAGE AREA.--22.1 mi² (57.2 km²).

PERIOD OF RECORD.--July 1944 to current year.

REVISED RECORDS.--WSP 1203: 1948. WSP 1303: 1945(M). WSP 1383: 1954. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 156.59 ft (47.729 m) above mean sea level. Prior to Oct. 28, 1953, nonrecording gage and crest-stage gage at site 75 ft (23 m) upstream at same datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--33 years, 19.5 ft³/s (0.552 m³/s), 11.98 in/yr (304 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,180 ft³/s (118 m³/s) Oct. 6, 1972, gage height, 9.02 ft (2.749 m), from rating curve extended above 2,600 ft³/s (74 m³/s); minimum daily, 0.08 ft³/s (0.002 m³/s) Oct. 1, 1968; minimum gage height, 1.53 ft (0.466 m) Sept. 30, Oct. 1, 1970.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.7 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 3	1200	209	5.92	2.95	0.899	Oct. 21	0330	*530	15.0	3.89	1.186
Oct. 9	2000	285	8.07	3.22	.981						

Minimum daily discharge, 0.30 ft³/s (0.008 m³/s) Sept. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	50	34	13	12	16	14	8.9	5.0	2.2	1.1	.39
2	52	27	28	12	12	13	15	9.5	5.0	2.0	1.2	.36
3	162	22	23	12	13	12	19	14	4.7	1.8	1.1	.33
4	37	17	19	13	14	13	50	49	4.4	1.3	.95	.33
5	12	16	18	14	18	16	67	23	3.5	1.3	.72	.33
6	8.3	15	18	14	14	16	40	18	4.2	1.3	.50	.30
7	6.5	14	72	15	11	19	26	25	4.4	1.2	.50	.72
8	15	13	79	14	11	18	23	31	4.0	1.2	.50	1.2
9	211	12	43	13	11	14	21	13	4.7	1.1	.52	79
10	141	11	34	13	15	13	18	9.5	5.9	1.5	.39	51
11	29	11	37	13	21	12	18	8.3	5.0	1.6	.36	7.1
12	19	18	34	14	22	12	16	7.7	4.2	2.0	.33	2.8
13	14	22	31	14	25	42	15	7.1	3.7	2.0	.36	1.5
14	12	19	22	22	19	49	14	6.5	4.0	2.2	1.6	1.2
15	9.5	16	22	67	18	26	12	5.9	5.0	2.2	1.1	.80
16	8.3	15	21	43	15	21	12	5.9	5.0	2.0	.72	.95
17	26	14	19	30	13	18	12	5.0	12	1.8	.72	3.7
18	26	13	16	25	12	19	11	5.0	8.9	2.0	1.2	3.0
19	14	12	14	19	14	23	11	5.3	5.3	2.0	.72	1.6
20	117	12	18	18	15	49	11	5.0	4.4	1.6	.62	1.3
21	312	12	26	16	13	37	10	4.7	3.7	1.5	.50	.95
22	61	11	18	15	13	52	10	4.7	3.5	1.8	.62	.72
23	31	11	15	13	13	49	9.5	4.7	3.7	1.8	.62	.62
24	29	11	14	14	15	31	11	4.7	4.2	1.2	1.3	.62
25	32	12	14	14	26	25	12	14	4.4	1.4	1.3	.62
26	94	10	31	13	16	21	11	15	4.4	1.3	.80	.62
27	50	12	23	13	16	19	10	8.9	3.7	1.1	.72	.72
28	28	15	19	12	22	19	9.5	6.5	3.2	1.1	.62	.72
29	25	88	18	12	---	19	10	5.0	3.0	.95	.50	.50
30	23	74	14	12	---	19	9.5	4.4	2.6	.95	.42	.50
31	25	---	14	12	---	18	---	4.7	---	.95	.42	---
TOTAL	1655.6	605	808	544	439	730	527.5	339.9	139.7	48.35	23.03	164.50
MEAN	53.4	20.2	26.1	17.5	15.7	23.5	17.6	11.0	4.66	1.56	.74	5.48
MAX	312	88	79	67	26	52	67	49	12	2.2	1.6	79
MIN	6.5	10	14	12	11	12	9.5	4.4	2.6	.95	.33	.30
CFSM	2.42	.91	1.18	.79	.71	1.06	.80	.50	.21	.07	.03	.25
IN.	2.79	1.02	1.36	.92	.74	1.23	.89	.57	.24	.08	.04	.28

CAL YR 1976 TOTAL 7908.56 MEAN 21.6 MAX 396 MIN .72 CFSM .98 IN 13.31
WTR YR 1977 TOTAL 6024.58 MEAN 16.5 MAX 312 MIN .30 CFSM .75 IN 10.14

02037000 JAMES RIVER AND KANAWHA CANAL NEAR RICHMOND, VA

LOCATION.--Lat 37°33'52", long 77°34'28", Henrico County, Hydrologic Unit 02080205, on left bank 75 ft (23 m) downstream from Canal bridge, 400 ft (122 m) downstream from head gates, 1,200 ft (366 m) north of north end of Bosher Dam on James River, 1.6 mi (2.6 km) upstream from Huguenot Memorial Bridge, and 2.0 mi (3.2 km) west of city limits of Richmond.

PERIOD OF RECORD.--September 1936 to current year.

GAGE.--Water-stage recorder. Datum of gage is 106.07 ft (32.330 m) above mean sea level. Prior to Oct. 1, 1938, at datum 3.06 ft (0.933 m) higher.

REMARKS.--Records good above 40 ft³/s (1.13 m³/s) and fair below. Canal diverts from James River 1,200 ft (366 m) above Bosher Dam and discharges into river at several points below gaging station near Richmond. Above 2,540 ft³/s (71.9 m³/s), gage height, 14.5 ft (4.42 m), there is interchange of flow with James River; discharge above 2,540 ft³/s (71.9 m³/s) included in discharge for James River near Richmond (station 02037500). Figures given show flow in canal only. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--41 years, 827 ft³/s (23.42 m³/s).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 29.1 ft (8.87 m) June 23, 1972, from floodmarks, interchange of flow with James River makes maximum discharge indeterminate; no flow at times when head gates were closed.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,020 ft³/s (28.9 m³/s) Apr. 10, gage height, 8.21 ft (2.502 m); minimum daily, 10 ft³/s (0.28 m³/s) June 28 to July 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	850	922	904	904	512	922	832	868	448	10	18	164
2	904	922	904	814	674	922	832	868	448	10	19	164
3	904	904	904	598	796	922	832	868	448	12	19	160
4	904	904	904	544	850	632	832	814	448	12	19	160
5	886	904	904	448	886	25	886	528	432	14	20	168
6	886	904	904	448	184	25	904	448	432	14	21	164
7	886	904	904	603	449	23	886	432	432	18	22	205
8	868	904	922	886	636	23	904	448	448	22	24	171
9	886	886	904	886	814	21	634	448	432	21	26	516
10	904	868	904	886	850	21	288	464	432	20	30	688
11	904	886	904	509	868	19	868	448	448	16	44	706
12	904	886	904	233	868	19	868	448	448	14	56	652
13	886	904	904	364	868	18	868	448	448	14	70	285
14	904	904	904	620	868	18	886	448	432	15	85	179
15	904	886	480	796	868	16	904	448	432	15	82	401
16	904	886	492	799	868	16	904	448	448	16	19	688
17	904	886	868	456	868	15	886	448	448	16	24	724
18	904	868	904	624	868	15	886	448	448	16	247	724
19	904	868	904	634	868	14	886	448	448	17	448	518
20	886	850	904	644	868	14	886	448	432	17	464	176
21	904	868	904	654	868	12	886	448	448	17	464	90
22	904	868	904	664	850	12	886	448	448	17	448	218
23	904	868	904	674	868	12	904	448	448	17	337	208
24	922	868	904	684	850	12	904	448	448	17	336	203
25	904	850	904	694	868	12	904	432	448	17	344	188
26	904	850	904	704	904	12	904	448	432	17	396	193
27	904	850	904	760	904	14	886	448	20	17	294	193
28	922	850	904	706	922	14	886	448	10	17	294	193
29	904	886	904	237	---	16	886	448	10	17	243	193
30	904	904	904	156	---	16	886	448	10	18	179	193
31	922	---	904	380	---	450	---	448	---	18	160	---
TOTAL	27880	26508	27170	19009	22365	4282	25604	15578	11554	498	5252	9485
MEAN	899	884	876	613	799	138	853	503	385	16.1	169	316
MAX	922	922	922	904	922	922	904	868	448	22	464	724
MIN	850	850	480	156	184	12	288	432	10	10	18	90

CAL YR 1976 TOTAL 275247 MEAN 752 MAX 960 MIN 10
WTR YR 1977 TOTAL 195185 MEAN 535 MAX 922 MIN 10

02037500 JAMES RIVER NEAR RICHMOND, VA

LOCATION.--Lat 37°33'47", long 77°32'50", Henrico County, Hydrologic Unit 02080205, on left bank 0.1 mi (0.2 km) upstream from Huguenot Memorial Bridge, 0.5 mi (0.8 km) west of city limits of Richmond, 1.7 mi (2.7 km) downstream from Bosher Dam, 3.3 mi (5.3 km) upstream from Powhite Creek, and at mile 116.60 (187.61 km).

DRAINAGE AREA.--6,758 mi² (17,503 km²).

PERIOD OF RECORD.--October 1934 to current year. Gage-height records collected in vicinity of Mayo's Bridge, at mile 109.5 (176.2 km), 1876-1956, and at mile 108.7 (174.9 km) since 1957, are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 972: 1936(M). WSP 1433: 1951(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Control is Williams Island dams which divert flow for city of Richmond water supply. Datum of gage is 98.82 ft (30.120 m) above mean sea level.

REMARKS.--Records good. City of Richmond takes from 40 ft³/s (1.13 m³/s) to 90 ft³/s (2.55 m³/s) for water supply from river below gage except during periods of low flow when supply is obtained from James River and Kanawha Canal. Flow regulated by powerplants above station. Above 18.2 ft (5.55 m) stage there is interchange of flow with James River and Kanawha Canal. Records of daily discharge include diversion by city of Richmond but do not include flow in James River and Kanawha Canal (station 02037000) which diverts around station. National Weather Service telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have oeen collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--43 years, 7,431 ft³/s (210.4 m³/s), 14.93 in/yr (379 mm/yr), includes flow in James River and Kanawha Canal.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 313,000 ft³/s (8,860 m³/s), includes canal flow, June 23, 1972, gage height, 28.62 ft (8.723 m); minimum daily, about 10 ft³/s (0.28 m³/s) Sept. 8-15, 1966, Sept. 30, Oct. 5, 6, 1968, Oct. 8-10, 1970; minimum daily discharge of James River and James River and Kanawha Canal combined, 370 ft³/s (10.5 m³/s) Sept. 13, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Probable minimum daily discharge, since 1899, of James River and James River and Kanawha Canal combined, about 350 ft³/s (9.9 m³/s) in October 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50,000 ft³/s (1,400 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 11	1030	*72800	2060	15.63	4.764	Apr. 7	2100	65600	1860	14.88	4.535

Minimum discharge, 415 ft³/s (11.8 m³/s) Sept. 19, gage height, 3.22 ft (0.981 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1820	11300	8610	4750	3600	7730	5430	2970	2190	1800	865	955
2	4120	10500	6450	4370	3500	6600	5150	2900	1980	1800	932	715
3	13200	12200	5860	4000	3170	6450	4750	2940	2140	1630	932	755
4	13600	10100	5430	4000	3240	6160	4880	3220	2090	1400	978	910
5	6240	8800	5150	4120	3870	6160	7840	4240	1840	1400	932	715
6	4240	7900	5020	4120	5430	6160	28300	3870	1630	1290	1250	635
7	3500	6910	5290	4370	4370	6300	60800	4120	1540	1220	1110	955
8	3020	6160	20000	4370	3620	7400	43400	4750	1400	1180	1000	1160
9	6620	5580	24300	4240	3240	6760	20400	4240	1930	1160	978	2020
10	54400	5150	22000	4370	3000	6450	15400	3740	1400	1270	775	3500
11	69600	5020	15400	5150	3140	6010	11800	3240	1220	1360	635	2260
12	34500	4750	12200	4620	3740	5720	10100	3100	1250	1360	675	1540
13	15000	5020	10500	4000	4120	5720	8980	2940	1380	1340	955	1610
14	9740	5150	9740	3740	4620	8560	7900	2870	1270	1470	865	1380
15	7730	5150	9360	4620	4620	26500	6760	2550	1290	1450	1090	1000
16	5860	5020	8800	5580	4620	26100	6160	2360	1380	1340	1110	495
17	5290	4750	8080	6200	4750	16400	5860	2360	1800	1400	1380	675
18	5290	4620	7560	3750	4750	12200	5290	2140	1770	1450	1410	455
19	5430	4500	7070	3200	4500	10100	5020	2240	1770	1320	1470	495
20	5860	4240	6300	3250	4370	9740	4500	2140	2000	1040	1220	1020
21	30700	4120	6160	3300	4240	9360	4500	1930	1380	978	1160	1020
22	22500	4000	6300	3400	4120	9740	4370	1910	1380	1000	798	865
23	13100	3870	5720	3450	4120	12600	4370	1910	1250	1000	842	842
24	12600	3620	5290	3600	4120	12200	4000	1750	1220	955	1110	755
25	9740	3500	5150	3600	4500	12600	4000	1840	1160	978	1340	735
26	15900	3500	5150	3550	4880	12200	4000	2140	1450	955	932	735
27	40100	3370	5290	3650	5430	10100	3620	2970	1450	865	910	820
28	29700	3300	5150	3900	8980	9170	3370	2820	1800	842	865	978
29	18900	4240	5150	4100	---	7900	3320	2430	1840	865	735	755
30	13100	8430	5020	4000	---	7230	3240	2190	1820	865	775	735
31	10500	---	5020	3800	---	6450	---	1960	---	842	1070	---
TOTAL	491900	174770	262520	127170	120660	302770	307510	86780	48020	37825	31599	31490
MEAN	15870	5826	8468	4102	4309	9767	10250	2799	1601	1220	1019	1050
MAX	69600	12200	24300	6200	8980	26500	60800	4750	2190	1800	1410	3500
MIN	1820	3300	5020	3200	3000	5720	3240	1750	1160	842	635	455
(*)	899	884	876	613	799	138	853	503	385	16.1	169	316
MEAN‡	16769	6710	9344	4715	5108	9905	11103	3302	1986	1236.1	1188	1366
CFSM‡	2.48	.99	1.38	.70	.76	1.47	1.64	.49	.29	.18	.18	.20
IN‡	2.86	1.10	1.59	.81	.79	1.70	1.83	.56	.32	.21	.21	.22

CAL YR 1976 TOTAL 2579056 MEAN 7047 MAX 69600 MIN 535 MEAN‡ 7799 CFSM‡ 1.15 IN‡ 15.67
WTR YR 1977 TOTAL 2023014 MEAN 5543 MAX 69600 MIN 455 MEAN‡ 6078 CFSM‡ .90 IN‡ 12.20

* Diversion, in cubic feet per second, by James River and Kanawha Canal.
‡ Adjusted for diversion.

02038000 FALLING CREEK NEAR CHESTERFIELD, VA

LOCATION.--Lat 37°26'37", long 77°31'21", Chesterfield County, Hydrologic Unit 02080206, on left bank at upstream side of bridge on State Highway 651, 0.8 mi (1.3 km) downstream from Licking Creek, 2.8 mi (4.5 km) upstream from Pocoshock Creek, and 4.7 mi (7.6 km) northwest of Chesterfield.

DRAINAGE AREA.--32.8 mi² (85.0 km²).

PERIOD OF RECORD.--October 1955 to current year.

REVISED RECORDS.--WSP 1904: 1957(M), 1958-60.

GAGE.--Water-stage recorder. Datum of gage is 126.39 ft (38.524 m) above mean sea level.

REMARKS.--Records fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--22 years, 31.1 ft³/s (0.881 m³/s), 12.88 in/yr (327 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,510 ft³/s (71.1 m³/s) Sept. 12, 1960, gage height, 12.67 ft (3.862 m); minimum, 0.01 ft³/s (<0.001 m³/s) Sept. 20, Oct. 3, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 220 ft³/s (6.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 20	2330	245	6.94	6.06	1.847	Apr. 5	1715	*268	7.59	6.25	1.905

Minimum discharge, 0.76 ft³/s (0.022 m³/s) July 21, 29; minimum gage height, 1.92 ft (0.585 m) July 29, Aug. 12, 13, 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.8	42	42	19	18	35	24	10	7.0	2.1	1.7	2.2
2	53	25	30	17	16	27	22	12	7.4	1.7	2.1	1.9
3	96	20	25	17	17	23	22	24	6.0	1.3	1.6	1.6
4	24	17	21	18	21	23	82	46	4.9	1.2	1.4	1.6
5	15	16	20	19	26	27	198	73	4.3	1.1	1.1	1.4
6	12	14	18	19	22	27	143	49	4.4	1.1	.95	1.2
7	9.5	13	67	22	18	41	66	34	3.9	1.1	.93	5.9
8	7.9	13	111	22	16	41	49	35	3.1	1.0	.97	16
9	41	11	64	21	15	30	40	21	3.2	1.1	1.2	36
10	27	12	41	51	17	25	34	16	3.4	1.5	.97	73
11	14	12	36	60	18	23	31	15	3.1	1.1	.87	24
12	10	14	43	32	20	22	28	13	3.0	1.2	.82	12
13	8.5	19	43	26	24	32	25	11	2.7	2.1	.85	7.4
14	7.7	17	31	30	23	39	23	9.6	2.5	1.6	.93	5.1
15	6.3	16	28	91	20	28	22	8.6	2.8	1.1	.88	3.7
16	5.8	16	35	65	18	25	20	7.1	2.7	.98	.89	2.8
17	17	20	35	59	17	21	19	6.6	3.6	.87	6.8	4.3
18	30	18	27	55	15	22	17	6.0	6.9	.85	50	6.2
19	18	15	23	33	16	24	16	5.7	5.0	.87	17	5.7
20	89	13	26	25	18	64	15	6.1	3.7	.87	7.7	4.2
21	163	12	42	24	17	63	14	5.7	2.8	.86	4.9	3.0
22	47	11	30	20	15	98	14	5.1	2.2	1.4	4.2	2.5
23	24	10	25	22	15	116	13	4.6	2.5	.99	3.1	2.2
24	19	10	23	18	20	58	14	4.6	2.6	.96	12	2.0
25	20	9.8	21	21	40	42	16	14	2.5	.91	79	1.8
26	74	9.8	35	22	29	36	14	24	2.4	.97	26	1.6
27	51	11	36	22	28	31	12	15	2.1	.90	12	1.5
28	27	15	28	28	49	28	11	9.8	2.3	.87	7.2	1.2
29	21	117	25	34	---	27	12	8.8	4.0	.89	4.8	1.1
30	18	97	22	23	---	27	11	9.7	2.5	1.0	3.5	1.0
31	43	---	21	20	---	26	---	7.6	---	.93	2.7	---
TOTAL	1003.5	645.6	1074	954	588	1151	1027	517.6	109.5	35.42	259.06	234.1
MEAN	32.4	21.5	34.6	30.8	21.0	37.1	34.2	16.7	3.65	1.14	8.36	7.80
MAX	163	117	111	91	49	116	198	73	7.4	2.1	79	73
MIN	4.8	9.8	18	17	15	21	11	4.6	2.1	.85	.82	1.0
CFSM	.99	.66	1.06	.94	.64	1.13	1.04	.51	.11	.04	.26	.24
IN.	1.14	.73	1.22	1.08	.67	1.31	1.16	.59	.12	.04	.29	.27

CAL YR 1976 TOTAL 10068.66 MEAN 27.5 MAX 508 MIN .87 CFSM .84 IN 11.42
WTR YR 1977 TOTAL 7598.78 MEAN 20.8 MAX 198 MIN .82 CFSM .63 IN 8.62

02038700 JAMES RIVER NEAR DUTCH GAP, VA

LOCATION.--Lat 37°23'26", long 77°21'48", Henrico County, at Richmond Yacht Club, on left bank of main channel 1.2 mi (1.9 km) upstream from Dutch Gap, 1.8 mi (2.9 km) downstream from Redwater Creek, 4.9 mi (7.8 km) southeast of Richmond City limits, and at mile 90.7 (145.9 km).

DRAINAGE AREA.--6,957 mi² (18,019 km²).

PERIOD OF RECORD.--Water years 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	CHEMICAL OXYGEN DEMAND (HIGH LEVEL) (MG/L)	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	FECAL COLIFORM (COL. PER 100 ML)	FECAL STREPTOCOCCI KF AGAR (COL. PER 100 ML)	BICARBONATE (HCO3) (MG/L)
OCT												
06...	1015	5130	110	6.9	10.0	25	8.8	15	.7	510	200	--
27...	1300	41000	75	7.5	11.0	55	10.9	11	.9	2200	800	--
NOV												
04...	1030	11000	123	7.6	10.0	10	11.3	8	.7	86	<15	--
DEC												
09...	0930	25200	108	6.0	2.0	45	12.4	16	.8	3600	3800	--
JAN												
12...	1230	4850	133	8.4	2.0	8	13.6	4	1.0	<110	200	51
27...	1215	4400	185	6.2	1.5	7	14.8	6	1.2	<14	<13	--
FEB												
09...	1345	4050	175	7.6	3.5	6	15.6	9	1.7	60	20	--
24...	1215	4970	210	7.4	7.5	8	13.2	13	.7	24	48	--
MAR												
09...	1230	6800	140	7.0	10.5	8	11.8	6	.7	38	<18	47
23...	1230	12600	119	6.7	11.5	10	10.4	7	.5	52	3700	--
APR												
11...	1015	12700	108	7.3	13.0	10	11.6	13	.4	38	27	--
25...	1015	4900	160	6.5	23.0	7	8.2	7	1.0	220	360	--
MAY												
05...	0930	4770	180	6.7	22.5	10	7.7	15	2.2	34	20	--
20...	1400	2590	217	7.5	27.0	5	8.8	9	4.6	23	9200	--
JUN												
06...	1230	2060	200	7.2	28.5	7	8.0	9	2.0	21	23	--
20...	1345	2430	245	7.6	29.5	1	10.0	11	1.4	18	80	67
JUL												
11...	1015	1380	280	7.5	33.0	4	7.4	14	2.2	31	26	--
21...	1300	1000	280	7.6	35.0	2	7.5	15	1.0	39	18	--
AUG												
11...	1200	680	332	8.4	33.5	1	9.6	20	5.4	30	18	--
23...	0900	1180	295	7.3	30.5	--	4.9	--	3.5	34	25	--
SEP												
08...	1300	1330	330	7.2	33.0	7	7.5	20	2.2	39	18	72
26...	1230	930	318	7.8	29.0	5	6.8	20	2.2	41	23	--

< Actual value is known to be less than the value shown.

02038700 JAMES RIVER NEAR DUTCH GAP, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	CHLORO-PHYLL A (UG/L)	CHLORO-PHYLL B (UG/L)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)
OCT												
06...	--	--	95	.43	.18	.40	.13	5.4	.000	.000	36	499
27...	--	--	37	.25	.08	.70	.22	9.2	5.93	4.24	107	11800
NOV												
04...	--	--	77	.36	.08	.24	.06	4.7	.000	.000	15	445
DEC												
09...	--	--	71	.32	.05	.58	.16	9.0	9.40	2.98	12	816
JAN												
12...	16	17	112	.38	.41	.61	.16	2.6	.000	.000	8	105
27...	--	--	99	.41	.38	.55	.14	2.6	3.93	4.67	11	121
FEB												
09...	--	--	113	.40	.42	.67	.19	3.0	.000	.000	6	66
24...	--	--	131	.32	.48	.82	.29	3.2	3.15	1.70	22	295
MAR												
09...	12	7.4	90	.31	.25	.53	.11	3.5	--	--	15	300
23...	--	--	79	.38	.20	.64	.13	7.6	3.68	1.01	48	1650
APR												
11...	--	--	66	.35	.12	.37	.10	4.9	1.84	.632	62	2130
25...	--	--	87	.06	.38	.72	.12	6.3	8.76	1.46	37	490
MAY												
05...	--	--	106	.12	.45	.79	.16	6.9	--	--	37	477
20...	--	--	128	.18	.33	.85	.12	5.0	11.8	1.23	34	238
JUN												
06...	--	--	99	.39	.26	.70	.14	5.8	6.84	.000	27	150
20...	25	20	154	.42	.32	.77	.14	5.8	29.9	2.67	14	92
JUL												
11...	--	--	178	.35	.28	.95	.18	6.0	39.6	6.04	--	--
21...	--	--	175	.36	.30	.98	.16	--	.000	.000	10	27
AUG												
11...	--	--	215	.45	.27	1.5	.22	5.8	10.2	.000	21	39
23...	--	--	--	--	--	--	--	--	16.9	1.58	19	61
SEP												
08...	43	33	200	.70	.31	.92	.28	7.2	.000	.000	7	25
26...	--	--	184	.96	.05	.79	.16	7.0	3.89	.000	10	25

02038850 HOLIDAY CREEK NEAR ANDERSONVILLE, VA
(Hydrologic bench-mark station)

LOCATION.--Lat 37°24'55", long 78°38'10", Appomattox County, Hydrologic Unit 02080207, on right bank 350 ft (110 m) downstream from culvert on State Highway 614, 1.0 mi (1.6 km) upstream from Holiday Lake, and 5.2 mi (8.4 km) southwest of Andersonville.

DRAINAGE AREA.--8.53 mi² (22.09 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1966 to current year.

REVISED RECORDS.--WDR VA-72: 1971(P).

GAGE.--Water-stage recorder. Datum of gage is 472.97 ft (144.161 m) above mean sea level.

REMARKS.--Records good except those below 2.0 ft³/s (0.057 m³/s), which are fair. Recording rain gage at station.

AVERAGE DISCHARGE.--11 years, 9.67 ft³/s (0.274 m³/s), 15.30 in/yr (391 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,640 ft³/s (273 m³/s) June 21, 1972, gage height, 14.64 ft (4.462 m), from high-water mark in gage house, from rating curve extended above 4,200 ft³/s (120 m³/s) on basis of slope-area measurement of peak flow; minimum, 0.10 ft³/s (0.003 m³/s) Sept. 11, 12, 1966; minimum gage height, 0.75 ft (0.229 m) July 28, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft³/s (4.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	0700	*380	10.8	4.05	1.234	Oct. 20	1515	351	9.94	3.89	1.186

Minimum daily discharge, 0.81 ft³/s (0.023 m³/s) Sept. 3, 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0	9.4	9.9	6.1	5.9	7.6	6.6	5.2	4.4	2.4	2.3	.86
2	38	7.5	8.5	6.5	5.8	7.3	7.2	5.2	4.0	2.4	2.2	.86
3	17	6.9	7.2	6.6	7.4	7.2	7.7	7.0	3.5	2.2	1.7	.81
4	6.3	6.5	7.0	6.4	8.1	7.8	38	15	3.3	2.2	1.6	.81
5	4.5	6.0	6.5	6.4	8.6	7.8	50	11	3.3	2.2	1.4	.91
6	3.7	5.7	6.3	6.3	7.2	9.3	20	8.7	3.4	2.1	1.3	.91
7	3.4	5.6	57	6.9	6.8	8.5	13	6.5	3.5	1.9	1.3	1.6
8	6.2	5.5	19	6.1	6.5	7.5	11	5.9	3.2	1.9	1.1	2.8
9	142	5.4	12	6.5	6.8	7.2	9.4	5.2	4.0	1.9	1.3	2.6
10	16	5.6	11	8.7	7.3	7.0	8.9	5.0	3.4	1.8	1.2	1.9
11	8.4	5.4	10	7.2	7.8	6.8	8.5	5.0	3.2	1.9	1.2	1.5
12	6.2	8.2	11	6.5	7.8	6.8	8.1	4.8	3.2	1.9	1.1	1.4
13	5.3	7.5	9.1	6.1	8.8	10	7.7	4.6	3.1	2.5	1.0	1.4
14	4.5	6.6	7.9	14	7.8	9.1	7.6	4.4	3.7	2.0	1.1	1.3
15	4.1	6.4	8.2	20	7.5	7.2	7.8	4.1	3.9	1.8	1.3	1.3
16	4.1	6.0	8.5	10	6.9	6.8	7.2	4.0	3.4	1.7	1.2	1.6
17	16	5.8	7.6	8.9	6.5	6.5	6.9	4.0	3.3	1.6	1.2	1.7
18	9.8	5.7	6.9	8.1	6.5	6.7	6.6	3.9	3.1	1.5	1.5	1.5
19	6.8	5.6	6.8	7.7	6.7	6.4	6.6	3.7	3.0	1.5	1.2	1.4
20	130	5.6	9.0	7.3	6.6	21	6.4	3.6	2.9	1.5	1.2	1.4
21	29	5.3	10	6.9	6.2	12	6.2	3.5	2.8	1.4	1.1	1.3
22	11	5.3	7.5	6.6	6.2	30	6.1	3.4	2.7	1.4	1.1	1.3
23	7.9	5.0	7.0	6.3	6.3	17	6.0	3.4	3.7	1.3	1.1	1.3
24	7.4	5.1	6.7	6.1	11	12	7.8	3.5	3.3	1.3	1.0	1.3
25	16	5.1	7.2	6.4	11	9.6	6.5	17	3.5	1.6	1.0	1.3
26	51	5.1	13	6.0	8.3	8.7	5.8	10	3.2	1.7	.86	1.3
27	14	6.0	8.8	6.6	8.6	8.1	5.7	5.5	2.9	1.4	.86	1.4
28	9.6	15	8.1	7.2	8.4	7.9	5.5	4.5	2.7	1.4	.86	1.3
29	7.7	35	7.5	6.8	---	7.7	5.4	4.2	2.7	1.3	.86	1.3
30	7.0	15	6.5	6.4	---	7.5	5.3	4.2	2.5	1.5	.96	1.3
31	15	---	6.9	6.1	---	7.2	---	4.4	---	1.4	.96	---
TOTAL	612.9	228.8	318.6	233.5	209.3	291.2	305.5	180.4	99.0	54.6	38.06	41.66
MEAN	19.8	7.63	10.3	7.53	7.48	9.39	10.2	5.82	3.30	1.76	1.23	1.39
MAX	142	35	57	20	11	30	50	17	4.4	2.5	2.3	2.8
MIN	3.4	5.0	6.3	6.0	5.8	6.4	5.3	3.4	2.5	1.3	.86	.81
CFSM	2.32	.89	1.21	.88	.88	1.10	1.20	.68	.39	.21	.14	.16
IN.	2.67	1.00	1.39	1.02	.91	1.27	1.33	.79	.43	.24	.17	.18

CAL YR 1976 TOTAL 3296.70 MEAN 9.01 MAX 142 MIN 1.9 CFSM 1.06 IN 14.38
WTR YR 1977 TOTAL 2613.52 MEAN 7.16 MAX 142 MIN .81 CFSM .84 IN 11.40

02038850 HOLIDAY CREEK NEAR ANDERSONVILLE, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	FECAL COLIFORM (COL. PER 100 ML)	FECAL STREPTOCOCCI KF AGAR (COL. PER 100 ML)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)
OCT 27...	0930	16	27	7.6	9.0	10.9	<700	--	9	0	2.3	.7
FEB 28...	0930	4.5	30	7.2	7.0	12.2	33	--	12	2	2.3	1.4
APR 29...	0915	5.4	32	6.3	13.5	10.4	36	540	16	2	2.4	2.4
JUN 10...	1015	3.4	42	6.5	15.5	11.2	44	100	6	0	.7	1.1
AUG 26...	1030	.90	32	7.0	19.5	9.5	56	79	15	0	3.7	1.3

DATE	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)
OCT 27...	2.2	.8	11	0	4.0	1.7	.1	8.8	50	26	.00	.00
FEB 28...	2.3	.5	13	0	3.1	1.5	.1	11	36	29	.00	.00
APR 29...	2.5	.5	17	0	2.2	1.6	.1	12	30	32	.00	.00
JUN 10...	2.6	.6	17	0	2.5	1.8	.0	13	53	31	.04	.00
AUG 26...	3.0	.6	20	0	2.2	1.2	.0	13	30	35	.04	.00

DATE	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL BARIUM (BA) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL SELENIUM (SE) (UG/L)
OCT 27...	.00	.01	--	--	--	--	--	--	--	--	--	--
FEB 28...	.00	.01	--	--	--	--	--	--	--	--	--	--
APR 29...	.00	.00	--	--	--	--	--	--	--	--	--	--
JUN 10...	.04	.01	4	0	0	<10	2	1300	8	20	.0	0
AUG 26...	.04	.03	--	--	--	--	--	--	--	--	--	--

< Actual value is known to be less than the value shown.

02038850 HOLIDAY CREEK NEAR ANDERSONVILLE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL CHLORDANE (UG/L)	CHLORDANE IN BOTTOM MATERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MATERIAL (UG/KG)	TOTAL DDE (UG/L)	DDE IN BOTTOM MATERIAL (UG/KG)	TOTAL DDT (UG/L)	DDT IN BOTTOM MATERIAL (UG/KG)
OCT												
27...	--	--	.00	.0	.0	0	.00	.0	.00	.0	.00	.0
FEB												
28...	--	--	--	--	--	--	--	--	--	--	--	--
APR												
29...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
10...	0	20	--	--	--	--	--	--	--	--	--	--
AUG												
26...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	TOTAL DIAZINON (UG/L)	TOTAL DIELDRIN (UG/L)	DIELDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL ETHION (UG/L)	TOTAL HEPTACHLOR (UG/L)	HEPTACHLOR IN BOTTOM MATERIAL (UG/KG)	TOTAL HEPTACHLOR EPOXIDE (UG/L)	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MATERIAL (UG/KG)
OCT											
27...	.00	.00	.0	.00	.0	.00	.00	.0	.00	.00	.0
FEB											
28...	--	--	--	--	--	--	--	--	--	--	--
APR											
29...	--	--	--	--	--	--	--	--	--	--	--
JUN											
10...	--	--	--	--	--	--	--	--	--	--	--
AUG											
26...	--	--	--	--	--	--	--	--	--	--	--

DATE	TOTAL MALATHION (UG/L)	TOTAL METHYL PARATHION (UG/L)	TOTAL METHYL TRITHION (UG/L)	TOTAL PARATHION (UG/L)	TOTAL TOXAPHENE (UG/L)	TOXAPHENE IN BOTTOM MATERIAL (UG/KG)	TOTAL TRITHION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
OCT												
27...	.00	.00	.00	.00	0	0	.00	.00	.00	.00	10	.62
FEB												
28...	--	--	--	--	--	--	--	--	--	--	5	.09
APR												
29...	--	--	--	--	--	--	--	--	--	--	10	.15
JUN												
10...	--	--	--	--	--	--	--	--	--	--	5	.05
AUG												
26...	--	--	--	--	--	--	--	--	--	--	5	.01

02039000 BUFFALO CREEK NEAR HAMPDEN SYDNEY, VA

LOCATION.--Lat 37°15'25", long 78°29'12", Prince Edward County, Hydrologic Unit 02080207, on left bank 100 ft (30 m) upstream from bridge on State Highway 658, 0.8 mi (1.3 km) upstream from Locket Creek, 2.0 mi (3.2 km) northwest of Hampden Sydney, and 6.0 mi (9.7 km) southwest of Farmville.

DRAINAGE AREA.--69.7 mi^2 (180.5 km^2).

PERIOD OF RECORD.--August 1946 to current year.

REVISED RECORDS.--WSP 1303: 1948-50(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 339.19 ft (103.385 m) above mean sea level (levels by Virginia Department of Highways and Transportation). Prior to Aug. 19, 1953, nonrecording gage at same site and datum.

REMARKS.--Records good except those for January, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--31 years, 64.7 ft^3/s (1.832 m^3/s), 12.61 in/yr (320 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,160 ft^3/s (259 m^3/s) June 21, 1972, gage height, 12.38 ft (3.773 m), from rating curve extended above 1,600 ft^3/s (45 m^3/s) on basis of slope-area measurement at gage height 11.96 ft (3.645 m); minimum daily, 2.7 ft^3/s (0.076 m^3/s) Oct. 7, 8, 1970.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of about 15 ft (4.6 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,490 ft^3/s (42.2 m^3/s) at 2100 hours Oct. 20, gage height, 7.32 ft (2.231 m), no other peak above base of 500 ft^3/s (14 m^3/s); minimum, 4.9 ft^3/s (0.14 m^3/s) Aug. 13, gage height, 1.13 ft (0.344 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	98	102	58	48	70	56	35	35	23	9.4	9.7
2	42	77	78	54	47	62	58	34	33	21	8.8	8.5
3	148	65	63	51	47	58	60	34	30	19	9.4	7.3
4	71	58	55	51	47	58	260	45	28	18	9.7	7.3
5	50	53	49	51	48	59	390	47	26	17	8.0	8.5
6	40	48	46	50	50	69	274	48	27	16	8.2	7.9
7	34	44	252	54	50	79	156	45	28	15	8.5	8.5
8	36	44	265	55	48	72	111	53	26	14	7.6	17
9	313	42	170	50	46	65	84	44	30	13	7.9	21
10	270	40	118	48	46	60	72	38	28	17	7.0	19
11	124	40	102	46	50	57	65	35	26	22	6.0	15
12	89	46	148	47	52	55	61	34	26	19	5.5	13
13	88	45	139	48	66	121	57	32	24	22	5.5	12
14	68	43	98	50	63	122	54	32	26	19	7.3	11
15	39	42	86	52	59	90	52	30	30	17	7.0	10
16	34	40	85	52	55	76	50	28	29	15	7.0	10
17	114	39	76	54	53	66	48	28	28	14	7.9	11
18	106	39	67	56	51	63	46	27	26	13	12	10
19	72	38	62	58	50	59	45	26	24	12	11	10
20	509	37	67	60	50	154	43	26	22	12	10	9.1
21	647	36	87	59	48	134	42	25	21	11	11	8.2
22	283	36	72	55	46	178	41	24	20	11	11	7.9
23	188	34	66	52	46	172	41	24	23	10	9.1	7.9
24	134	34	60	50	62	118	44	24	26	9.7	12	8.5
25	135	34	61	50	90	92	45	72	27	10	13	7.6
26	332	34	114	49	77	79	40	72	28	11	11	7.6
27	202	39	102	50	76	72	38	58	25	9.7	10	11
28	122	50	83	47	82	67	37	48	26	9.4	9.4	9.7
29	88	216	74	46	---	64	37	35	30	9.1	8.8	8.2
30	72	166	66	44	---	64	36	43	26	9.1	7.9	7.9
31	114	---	61	47	---	61	---	37	---	8.8	12	---
TOTAL	4614	1659	2972	1596	1553	2616	2443	1167	802	446.8	279.5	310.3
MEAN	149	55.3	95.9	51.5	55.5	84.4	81.4	37.6	26.7	14.4	9.02	10.3
MAX	647	216	265	60	90	178	390	72	35	23	13	21
MIN	28	34	46	44	46	55	36	24	20	8.8	5.5	7.3
CFSM	2.14	.79	1.38	.74	.80	1.21	1.17	.54	.38	.21	.13	.15
IN.	2.46	.89	1.59	.85	.83	1.40	1.30	.62	.43	.24	.15	.17

CAL YR 1976 TOTAL 24143.0 MEAN 66.0 MAX 852 MIN 12 CFSM .95 IN 12.88
WTR YR 1977 TOTAL 20458.6 MEAN 56.1 MAX 647 MIN 5.5 CFSM .81 IN 10.92

02039500 APPOMATTOX RIVER AT FARMVILLE, VA

LOCATION.--Lat 37°18'25", long 78°23'20", Cumberland County, Hydrologic Unit 02080207, on left bank at downstream side of bridge on State Highway 45 at north town limits of Farmville and 1.1 mi (1.8 km) downstream from Buffalo Creek.

DRAINAGE AREA.--303 mi² (785 km²).

PERIOD OF RECORD.--March 1926 to current year.

REVISED RECORDS.--WSP 972: 1927-37, 1938(M). WSP 1303: 1927(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 281.03 ft (85.032 m) above mean sea level. Prior to Nov. 29, 1928, nonrecording gage at same site and datum.

REMARKS.--Records good. Diurnal fluctuation at low flow caused by Prince Edward Mill 0.2 mi (0.3 km) upstream. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--51 years, 280 ft³/s (7.930 m³/s), 12.55 in/yr (319 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,100 ft³/s (937 m³/s) June 22, 1972, gage height, 29.70 ft (9.053 m), from floodmarks, from rating curve extended above 12,000 ft³/s (340 m³/s) on basis of contracted-opening measurement of peak flow; minimum, 3.8 ft³/s (0.11 m³/s) Sept. 25, 1941.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,900 ft³/s (54 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 10	1200	3460	98.0	14.91	4.545	Dec. 8	1000	2380	67.4	13.00	3.962
Oct. 21	1430	*5820	165	17.04	5.194	Apr. 5	1330	2570	72.8	13.36	4.072
Oct. 27	0130	1910	54.1	12.07	3.679						

Minimum discharge, 25 ft³/s (0.71 m³/s) Sept. 4, 30; minimum gage height, 3.27 ft (0.997 m) Aug. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	197	535	505	228	211	267	209	142	140	83	43	37
2	250	366	354	211	207	230	209	138	131	76	45	36
3	480	280	296	267	208	286	227	157	117	68	43	28
4	306	279	361	237	246	203	486	252	104	63	44	25
5	196	269	366	220	300	217	2300	258	98	61	42	52
6	141	251	230	218	221	232	1460	278	98	59	37	36
7	116	239	870	226	231	283	711	246	106	57	36	37
8	118	233	1960	209	219	265	465	309	97	56	38	61
9	1050	220	786	219	214	229	370	224	97	56	46	115
10	2710	219	567	220	194	212	315	170	109	53	39	106
11	612	216	431	230	205	201	287	153	93	61	36	77
12	286	232	462	267	215	193	264	154	90	62	32	58
13	218	261	566	319	238	323	245	157	88	66	34	47
14	166	242	402	300	259	438	233	131	88	67	38	41
15	139	230	338	270	227	366	227	124	112	58	39	38
16	111	223	337	330	209	285	218	116	117	53	36	37
17	318	212	319	350	190	224	204	112	106	49	56	37
18	551	207	285	320	167	212	195	110	105	45	76	47
19	308	186	263	295	184	213	189	106	97	43	62	45
20	1230	168	269	270	186	386	185	104	86	44	56	39
21	4940	166	367	250	177	623	177	100	77	43	50	36
22	1970	159	318	233	166	852	176	97	72	43	51	32
23	600	153	270	225	167	934	170	94	86	42	45	30
24	415	151	262	215	190	505	162	95	104	39	52	30
25	438	150	237	212	300	366	210	148	110	40	68	30
26	1410	150	406	227	340	305	182	359	113	48	48	29
27	1250	159	462	216	278	271	163	227	109	47	43	29
28	910	196	366	224	304	253	156	182	95	43	40	31
29	346	1070	311	300	---	243	153	136	109	39	36	27
30	287	1090	272	257	---	236	148	147	98	42	32	26
31	436	---	298	242	---	229	---	165	---	46	32	---
TOTAL	22503	8466	13307	7780	6371	9621	11312	5117	3044	1646	1369	1286
MEAN	726	283	429	251	228	310	377	165	101	53.1	44.2	42.9
MAX	4940	1090	1960	350	340	934	2300	359	140	83	76	115
MIN	111	150	230	209	166	193	148	94	72	39	32	25
CFSM	2.40	.93	1.42	.83	.75	1.02	1.24	.55	.33	.18	.15	.14
IN.	2.77	1.04	1.63	.96	.78	1.18	1.39	.63	.37	.20	.17	.16

CAL YR 1976 TOTAL 115530 MEAN 316 MAX 4940 MIN 31 CFSM 1.04 IN 14.16
WTR YR 1977 TOTAL 91960 MEAN 252 MAX 4940 MIN 25 CFSM .83 IN 11.29

02040000 APPOMATTOX RIVER AT MATTOAX, VA

LOCATION.--Lat 37°25'17", long 77°51'33", Amelia County, Hydrologic Unit 02080207, on right bank 75 ft (23 m) upstream from Southern Railway bridge at Mattoax, 0.3 mi (0.5 km) upstream from Skinquarter Creek, and 3.7 mi (6.0 km) upstream from Flat Creek.

DRAINAGE AREA.--726 mi² (1,880 km²).

PERIOD OF RECORD.--August 1900 to December 1905, March 1926 to current year.

REVISED RECORDS.--WSP 892: 1938. WSP 972: 1928, 1932, 1934-38. WSP 1303: 1901(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 174.51 ft (53.191 m) above mean sea level. August 1900 to December 1905, nonrecording gage at same site, different datum. March 1926 to October 1936, nonrecording gage at same site and datum.

REMARKS.--Records good except those for January and February, which are fair. Appomattox Water Authority gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--50 years, 709 ft³/s (20.08 m³/s), 13.26 in/yr (337 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,000 ft³/s (991 m³/s) Aug. 18, 1940, gage height, 35.3 ft (10.76 m), from floodmark in gage house, from rating curve extended above 20,000 ft³/s (570 m³/s) on basis of records for stations at Farmville and near Petersburg; minimum, 11 ft³/s (0.31 m³/s) Oct. 2, 1930, gage height, 3.52 ft (1.073 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,530 ft³/s (128 m³/s) at 0100 hours Oct. 25, gage height, 19.74 ft (6.017 m), no other peak above base of 4,000 ft³/s (110 m³/s); minimum, 50 ft³/s (1.42 m³/s) Aug. 13, gage height, 3.52 ft (1.082 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	227	1190	2510	482	500	747	512	341	200	167	61	62
2	501	1170	1280	430	490	686	473	320	297	137	66	59
3	1310	809	876	360	520	960	476	317	269	119	61	62
4	1280	708	714	395	570	909	807	657	232	106	64	75
5	854	669	620	380	630	692	2560	890	206	98	64	59
6	440	608	571	398	600	517	3180	580	187	92	62	65
7	319	905	959	360	580	905	3380	583	199	88	60	66
8	343	520	2440	370	530	753	3370	993	183	86	58	78
9	2720	682	2890	374	520	721	1640	667	194	88	57	190
10	7130	666	2990	400	510	576	1060	696	189	96	59	407
11	2900	649	1460	420	510	566	982	387	190	106	62	361
12	2860	659	1150	450	530	673	766	330	185	102	56	219
13	903	607	1390	600	957	960	667	311	165	133	53	140
14	594	536	1390	640	585	1110	617	293	156	225	56	107
15	695	510	980	600	684	1130	570	276	163	155	67	80
16	612	679	832	620	532	772	566	256	173	114	67	83
17	666	650	885	680	676	617	517	237	245	93	141	114
18	931	638	780	680	627	560	689	225	206	81	167	88
19	1710	621	670	780	386	513	668	220	177	75	241	86
20	1770	606	618	720	409	632	656	214	166	71	129	67
21	3910	373	678	630	416	1370	637	207	148	67	109	86
22	3610	759	795	570	396	1760	621	196	131	66	91	73
23	3690	366	711	530	377	1880	607	187	131	67	76	68
24	4230	332	687	500	395	2040	603	186	133	66	258	66
25	3260	326	889	480	566	1740	628	237	151	65	191	67
26	2040	323	587	470	877	865	666	360	180	65	125	61
27	2670	330	913	470	780	716	621	639	199	62	112	60
28	2750	361	886	470	767	633	376	687	196	65	87	60
29	1600	1070	733	475	----	583	389	341	170	64	75	95
30	920	2310	623	480	----	583	368	277	176	68	69	95
31	886	----	951	460	----	566	----	250	----	66	64	----
TOTAL	53201	17907	33761	15762	15096	25100	27166	11061	5646	2930	2888	3156
MEAN	1716	600	1089	508	539	810	906	357	188	94.5	93.2	105
MAX	4230	2310	2990	800	877	2040	3380	993	297	225	258	407
MIN	227	323	571	350	377	473	368	186	131	62	53	59
CFSM	2.36	.83	1.50	.70	.74	1.12	1.25	.49	.26	.13	.13	.15
IN.	2.71	.92	1.73	.81	.77	1.29	1.39	.57	.29	.15	.15	.16

CAL YR 1976 TOTAL 275434 MEAN 754 MAX 5908 MIN 56 CFSM 1.04 IN 14.13
WTR YR 1977 TOTAL 213767 MEAN 586 MAX 4230 MIN 53 CFSM .81 IN 10.95

02041000 DEEP CREEK NEAR MANNBORO, VA

LOCATION.--Lat 37°16'59", long 77°52'22", Amelia County, Hydrologic Unit 02080207, on left bank 300 ft (91 m) upstream from bridge on State Highway 153, 0.9 mi (1.4 km) upstream from Sweathouse Creek, 3.4 mi (5.5 km) northwest of Mannboro, and 7.5 mi (12.1 km) southeast of Amelia.

DRAINAGE AREA.--158 mi^2 (409 km^2).

PERIOD OF RECORD.--September 1946 to current year.

REVISED RECORDS.--WSP 1203: 1948 (calendar year figures only). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 177.20 ft (54.011 m) above mean sea level. Prior to Sept. 2, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good except those for January, which are poor. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--31 years, 138 ft^3/s (3.908 m^3/s), 11.86 in/yr (301 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,000 ft^3/s (425 m^3/s) Oct. 6, 1972, gage height, 24.04 ft (7.327 m), from high-water mark, from rating curve extended above 3,900 ft^3/s (110 m^3/s); minimum, 0.03 ft^3/s (<0.001 m^3/s) Oct. 4, 5, 1968; minimum gage height, 0.29 ft (0.088 m) Aug. 9-12, 1957.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 14.8 ft (4.51 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,200 ft^3/s (34 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 21	2400	*1850	52.4	8.30	2.530	Apr. 6	1600	1210	34.3	7.12	2.170

Minimum discharge, 0.80 ft^3/s (0.023 m^3/s) Aug. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	118	233	82	86	212	97	68	32	18	6.3	15
2	26	113	142	80	83	192	91	65	31	16	6.9	10
3	66	93	110	78	87	122	90	63	30	13	4.0	8.3
4	76	78	90	78	90	111	152	65	28	11	3.0	7.2
5	42	71	82	80	90	111	600	61	28	9.9	3.0	5.6
6	35	68	73	78	84	122	1100	72	26	9.5	2.7	4.9
7	25	83	108	78	83	177	746	80	28	8.3	2.6	4.6
8	19	95	266	80	80	265	235	145	30	6.9	1.7	4.8
9	150	91	478	80	79	202	175	136	32	6.5	1.4	31
10	630	56	308	85	78	192	145	86	28	5.6	1.7	61
11	656	69	182	87	90	132	130	58	26	60	1.6	55
12	132	52	182	90	96	118	117	47	26	205	2.0	34
13	72	63	245	97	106	118	112	44	22	197	4.2	28
14	52	67	233	110	118	137	104	37	20	195	5.2	26
15	30	66	162	125	113	132	93	36	20	76	6.6	16
16	35	67	157	150	100	113	86	32	20	30	4.6	13
17	46	67	167	135	89	100	78	30	20	28	4.6	57
18	127	63	147	125	80	96	72	30	20	22	61	37
19	157	60	122	110	76	95	67	28	20	20	44	30
20	212	56	111	90	82	162	66	28	19	17	20	22
21	906	51	127	90	86	323	61	26	19	13	20	16
22	1300	49	132	80	88	320	59	24	17	12	20	13
23	305	47	122	76	76	445	56	22	17	11	21	11
24	137	45	102	75	82	301	59	22	18	8.3	20	9.9
25	118	45	102	76	127	192	76	25	20	7.2	51	8.7
26	187	45	118	75	167	192	81	72	22	7.2	41	7.6
27	266	50	137	76	132	132	67	135	29	6.5	24	7.2
28	207	62	132	81	197	118	57	93	26	5.2	26	6.2
29	127	162	118	85	---	111	50	93	26	4.9	14	5.9
30	96	257	100	88	---	100	49	38	22	4.2	15	5.2
31	105	---	90	87	---	108	---	32	---	3.6	14	---
TOTAL	6266	2182	4878	2818	2723	5215	4860	1679	713	1015.6	445.5	564.3
MEAN	202	72.7	157	90.9	97.3	168	162	54.2	23.8	32.8	14.4	18.8
MAX	1300	257	478	150	197	445	1100	145	32	205	63	61
MIN	16	45	73	74	76	92	49	22	17	3.6	1.4	4.6
CFSM	1.28	.46	.99	.58	.62	1.06	1.03	.34	.15	.21	.10	.12
IN.	1.47	.51	1.15	.66	.64	1.23	1.15	.40	.17	.24	.11	.13

CAL YR 1976 TOTAL 46878.40 MEAN 128 MAX 2040 MIN .35 CFSM .80 IN 10.85
WTR YR 1977 TOTAL 33466.60 MEAN 91.9 MAX 1300 MIN 1.4 CFSM .58 IN 7.87

02041650 APPOMATTOX RIVER AT MATOACA, VA

LOCATION.--Lat 37°13'28", long 77°28'32", Chesterfield County, Hydrologic Unit 02080207, on left bank at upstream side of bridge on State Highway 600, 0.2 mi (0.3 km) south of Matoaca, 2.0 mi (3.2 km) upstream from Rohoic Creek, 2.8 mi (4.5 km) downstream from Lake Chesdin, 3.5 mi (5.6 km) west of Petersburg, and at mile 15.9 (25.6 km).

DRAINAGE AREA.--1,344 mi² (3,481 km²).

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 68.30 ft (20.818 m) above mean sea level.

REMARKS.--Records good except those for periods of no gage-height record, Dec. 13 to Feb. 28 and May 18 to July 5, which are poor. Flow regulated by Appomattox Water Authority at Lake Chesdin, capacity, 36,500 acre-ft (45.0 hm³), 2.8 mi (4.5 km) upstream, from which an average of 12.4 ft³/s (0.35 m³/s) is diverted for industrial and municipal use. Records do not include flow of Upper Appomattox Canal of Virginia Electric and Power Co. which diverts around station. National Weather Service gage-height telemeter at station. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--8 years, 1,463 ft³/s (41.4 m³/s), 14.78 in/yr (375 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,800 ft³/s (1,160 m³/s) Oct. 7, 1972, gage height, 18.39 ft (5.605 m); minimum, 106 ft³/s (3.00 m³/s) June 15, 16, 1970.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,410 ft³/s (182 m³/s) Oct. 23, gage height, 7.88 ft (2.402 m); minimum, 162 ft³/s (4.59 m³/s) Aug. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	220	1320	3290	760	800	1590	798	420	480	240	167	166
2	452	1410	3010	640	800	1360	754	417	500	190	166	166
3	1480	1280	1650	620	800	1110	767	395	480	180	167	167
4	1730	1030	1180	620	890	951	1080	406	440	172	165	168
5	1540	880	951	620	1000	1000	3600	660	380	174	165	167
6	988	737	832	620	1050	1000	5600	805	320	171	165	167
7	657	707	1040	630	900	1310	5570	832	300	168	165	172
8	525	701	2630	640	880	1540	5080	1020	320	166	166	174
9	1230	546	3970	650	850	1530	4010	1090	300	167	166	175
10	3710	578	4260	680	830	1300	2110	847	340	166	165	172
11	4390	541	3720	720	800	1060	1470	621	320	167	165	182
12	4080	562	2390	760	780	915	1220	500	300	168	165	242
13	2960	583	2280	940	800	880	1040	443	260	216	169	254
14	1280	610	2400	1100	860	1100	927	395	260	336	168	236
15	772	660	2050	970	900	1500	786	359	260	415	167	199
16	612	660	1450	1050	740	1200	744	322	300	314	167	182
17	689	621	1600	1100	650	1100	684	310	370	241	175	201
18	890	632	1500	1250	630	960	637	304	420	209	171	235
19	1380	578	1250	1150	600	880	607	300	350	206	168	219
20	1970	546	1050	960	700	1300	573	300	310	181	167	203
21	4640	546	1150	820	700	2300	568	305	270	177	167	190
22	6070	526	1300	750	680	3200	544	315	220	171	167	174
23	6230	468	1200	720	690	3330	513	320	200	166	167	169
24	5420	454	1050	720	750	3350	533	325	205	166	180	169
25	4970	449	940	725	960	2900	578	335	230	166	170	168
26	4230	445	1000	743	1700	1830	593	450	275	166	168	169
27	3460	473	1200	700	1550	1310	568	900	320	166	168	168
28	3520	501	1550	710	1610	1090	533	600	315	167	167	168
29	3090	1050	1300	720	---	1010	466	500	290	166	167	168
30	1660	2510	1100	740	---	957	431	430	300	165	166	168
31	1310	---	900	760	---	966	---	380	---	165	166	---
TOTAL	76155	22604	55193	24588	24900	45829	43384	15606	9635	6088	5192	5558
MEAN	2457	753	1780	793	889	1478	1446	503	321	196	167	185
MAX	6230	2510	4260	1250	1700	3350	5600	1090	500	415	180	254
MIN	220	445	832	620	600	880	431	300	200	165	165	166
CFSM	1.83	.56	1.32	.59	.66	1.10	1.08	.37	.24	.15	.12	.14
IN.	2.11	.63	1.53	.68	.69	1.27	1.20	.43	.27	.17	.14	.15

CAL YR 1976 TOTAL 443844 MEAN 1213 MAX 8310 MIN 132 CFSM .90 IN 12.28
WTR YR 1977 TOTAL 334732 MEAN 917 MAX 6230 MIN 165 CFSM .68 IN 9.26

02042500 CHICKAHOMINY RIVER NEAR PROVIDENCE FORGE, VA

LOCATION.--Lat 37°26'10", long 77°03'40", New Kent County, Hydrologic Unit 02080206, on left bank 100 ft (30 m) downstream from bridge on State Highway 618, 1.1 mi (1.8 km) southwest of Providence Forge, and 1.7 mi (2.7 km) downstream from Schiminoe Creek.

DRAINAGE AREA.--248 mi^2 (642 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1942 to current year.

REVISED RECORDS.--WSP 1553: 1956. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 6.07 ft (1.850 m) above mean sea level.

REMARKS.--Records good.

AVERAGE DISCHARGE.--35 years, 256 ft^3/s (7.250 m^3/s), 14.02 in/yr (356 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,710 ft^3/s (218 m^3/s) Aug. 15, 1955, gage height, 11.67 ft (3.557 m); minimum, 0.70 ft^3/s (0.020 m^3/s) July 7, 1977; minimum gage height, 1.53 ft (0.466 m) Sept. 13, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 575 ft^3/s (16.3 m^3/s) Oct. 27, gage height, 7.22 ft (2.201 m); minimum, 0.70 ft^3/s (0.020 m^3/s) July 7, gage height, 1.64 ft (0.500 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	383	250	218	235	298	229	65	56	2.2	1.8	149
2	102	437	278	230	222	339	202	61	58	1.8	8.8	101
3	251	442	269	212	207	323	186	61	49	1.6	11	49
4	265	392	289	198	209	290	202	66	37	1.4	35	28
5	269	326	357	189	234	294	323	86	30	1.3	23	18
6	250	280	359	180	231	279	464	85	25	1.2	11	11
7	233	268	351	175	208	285	535	88	22	.99	8.2	52
8	289	268	384	160	202	284	531	147	18	1.2	4.3	31
9	343	252	430	165	199	270	490	158	15	6.7	3.5	40
10	343	224	445	190	198	255	496	197	14	67	2.7	61
11	322	192	425	230	211	236	457	208	12	82	2.4	57
12	284	168	436	280	221	221	390	206	11	75	2.1	61
13	231	161	472	305	251	217	311	222	9.1	74	2.4	68
14	173	144	453	290	258	210	247	203	7.9	87	3.1	100
15	162	136	404	300	257	192	209	149	7.3	115	2.3	214
16	199	140	369	330	238	191	178	97	6.4	98	8.2	377
17	236	136	340	375	209	190	160	70	5.4	70	4.7	410
18	249	134	320	420	188	185	141	54	4.7	50	14	379
19	214	137	298	415	192	197	125	45	4.3	30	52	301
20	214	144	276	390	190	230	112	38	3.5	17	81	198
21	337	140	274	340	184	270	101	30	3.3	11	74	104
22	353	132	257	300	171	296	93	26	3.0	5.9	80	66
23	385	125	248	260	162	377	85	23	3.1	4.7	84	57
24	370	120	230	235	160	384	86	19	3.3	3.5	74	59
25	351	118	198	215	199	425	101	41	3.3	2.8	84	58
26	493	111	240	200	201	443	89	63	3.3	2.6	67	50
27	571	107	261	195	217	455	81	62	3.1	2.3	82	39
28	562	108	267	220	270	436	75	55	2.4	2.0	76	29
29	485	162	261	263	---	398	71	41	2.7	1.7	43	20
30	394	210	242	263	---	333	68	35	2.4	1.6	112	15
31	349	---	236	240	---	272	---	41	---	1.6	141	---
TOTAL	9317	6097	9919	7983	5924	9075	6838	2738	423.5	823.09	1196.5	3200
MEAN	301	203	320	258	212	293	228	88.3	14.1	26.6	38.6	107
MAX	571	442	472	420	270	455	535	222	58	115	141	410
MIN	39	107	198	160	160	185	68	19	2.4	.99	1.8	11
CFSM	1.21	.82	1.29	1.04	.86	1.18	.92	.36	.06	.11	.16	.43
IN.	1.40	.91	1.49	1.20	.89	1.36	1.03	.41	.06	.12	.18	.48

CAL YR 1976 TOTAL 82182.80 MEAN 225 MAX 1580 MIN 4.9 CFSM .91 IN 12.33
WTR YR 1977 TOTAL 63534.09 MEAN 174 MAX 571 MIN .99 CFSM .70 IN 9.53

02042500 CHICKAHOMINY RIVER NEAR PROVIDENCE FORGE, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969-70, 1972 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
OCT												
06...	1510	245	98	23	15	7.0	1.3	6.8	1.9	10	19	9.0
NOV												
19...	1330	137	93	22	13	6.0	1.6	7.0	3.6	11	12	11
JAN												
07...	0950	171	85	28	15	7.0	2.5	7.8	2.2	16	10	11
FEB												
17...	1300	202	92	20	10	5.4	1.5	9.3	1.9	12	7.2	14
MAR												
23...	1415	367	80	21	3	5.8	1.5	7.9	2.0	21	7.2	12
JUL												
07...	1230	.77	108	32	2	9.7	1.9	7.3	1.8	37	3.2	9.2
SEP												
07...	1300	64	85	23	11	6.9	1.5	6.5	1.6	15	11	7.4

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED NITRATE (N) (MG/L)	DISSOLVED NITRATE (NO3) (MG/L)	DISSOLVED NITRITE (N) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO PHOSPHATE (PO4) (MG/L)	DISSOLVED IRON (FE) (UG/L)
OCT											
06...	.2	10	72	69	.01	.00	.00	.01	.00	.00	280
NOV											
19...	.1	6.7	72	54	.01	.00	.00	.01	.01	.03	190
JAN											
07...	.0	7.2	64	56	.10	.40	.00	.10	.01	.03	220
FEB											
17...	.0	1.5	58	47	.01	.00	.00	.01	.01	.03	70
MAR											
23...	.1	4.0	52	52	.01	.00	.00	.01	.01	.03	460
JUL											
07...	.1	2.1	60	54	.06	.30	.01	.07	.02	.06	10
SEP											
07...	.1	4.8	66	47	.00	.00	.00	.00	.00	.00	230

02043600 (REVISED) LAKE DRUMMOND IN GREAT DISMAL SWAMP, VA

LOCATION.--Lat 36°35'42", long 76°26'23", Chesapeake City, Hydrologic Unit 03010205, on right bank in outlet canal, 200 ft (61 m) upstream from dam and gates, 0.5 mi (0.8 km) downstream from Lake Drummond, 3.1 mi (5.0 km) north of North Carolina State line, and 20 mi (32 km) southwest of Norfolk.

PERIOD OF RECORD.--May 1926 to current year. Prior to October 1973, published as Lake Drummond in Dismal Swamp.

REVISED RECORDS.--WSP 1032: 1934-43.

GAGE.--Nonrecording gage. Datum of gage is 12.16 ft (3.706 m) above mean sea level.

REMARKS.--Mean daily gage heights are shown in table below.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 6.68 ft (2.036 m) Sept. 17, 1960; minimum, -0.67 ft (-0.204 m) Nov. 3, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 5.23 ft (1.594 m) May 29; minimum, 2.04 ft (0.622 m) Nov. 14, 24-28.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.08	2.10	2.08	2.93	4.95	5.03	5.00	5.00	5.14	4.75	3.68	3.45
2	2.08	2.08	2.09	2.98	4.96	5.08	4.98	4.98	5.16	4.56	3.65	3.44
3	2.06	2.08	2.11	2.98	4.94	5.09	5.02	4.98	5.18	4.70	3.70	3.42
4	2.10	2.07	2.12	3.07	4.94	5.10	5.03	4.99	5.11	4.65	3.70	3.41
5	2.12	2.07	2.11	3.08	4.98	5.15	5.01	4.99	5.07	4.61	3.70	3.39
6	2.11	2.06	2.10	3.10	4.99	5.10	4.95	5.01	5.03	4.65	3.68	3.40
7	2.10	2.06	2.15	3.24	5.00	5.01	4.93	5.00	5.05	4.52	3.63	3.38
8	2.08	2.09	2.20	3.29	4.99	5.00	4.97	5.10	5.03	4.51	3.69	3.46
9	2.09	2.08	2.22	3.30	4.99	4.99	5.02	5.10	5.03	4.48	3.64	3.48
10	2.09	2.07	2.22	3.44	4.98	4.98	5.03	5.00	5.10	4.50	3.60	3.52
11	2.10	2.08	2.24	3.67	4.99	4.97	5.06	4.97	5.07	4.46	3.60	3.50
12	2.08	2.08	2.34	3.75	4.99	4.99	5.07	4.98	5.06	4.42	3.59	3.48
13	2.08	2.07	2.40	3.83	5.05	4.99	5.08	4.98	5.05	4.40	3.56	3.47
14	2.07	2.04	2.35	4.02	5.08	5.01	5.07	4.97	5.04	4.34	3.54	3.45
15	2.06	2.13	2.36	4.19	5.08	5.00	5.04	4.98	5.05	4.29	3.54	3.42
16	2.06	2.15	2.44	4.19	5.07	4.98	5.00	4.94	5.00	4.22	3.58	3.40
17	2.07	2.10	2.50	4.42	5.04	5.00	5.00	4.97	5.01	4.17	3.54	3.40
18	2.08	2.09	2.54	4.47	4.97	5.04	4.97	4.98	5.01	4.10	3.66	3.38
19	2.08	2.09	2.52	4.58	4.93	5.10	5.02	4.95	5.02	4.07	3.65	3.37
20	2.08	2.06	2.59	4.69	4.95	5.07	5.04	4.91	5.00	4.04	3.64	3.37
21	2.08	2.06	2.72	4.80	4.98	4.99	5.07	4.88	4.99	4.04	3.59	3.37
22	2.10	2.06	2.63	4.86	4.95	5.01	5.08	4.85	4.95	4.03	3.60	3.34
23	2.06	2.05	2.64	4.97	4.94	4.92	5.05	4.83	4.91	3.93	3.60	3.36
24	2.08	2.04	2.69	5.03	5.03	4.96	5.02	4.83	4.89	3.89	3.59	3.34
25	2.10	2.04	2.68	5.05	5.01	4.99	5.06	5.04	4.88	3.89	3.53	3.30
26	2.11	2.04	2.81	5.06	5.07	5.02	5.05	5.08	4.85	3.85	3.52	3.27
27	2.12	2.04	2.86	5.00	5.01	5.06	5.07	5.16	4.81	3.79	3.52	3.26
28	2.12	2.04	2.81	5.00	5.07	5.06	5.03	5.17	4.75	3.77	3.51	3.21
29	2.11	2.06	2.90	4.98	---	5.06	5.01	5.23	4.75	3.74	3.50	3.24
30	2.09	2.08	2.90	4.98	---	5.05	5.00	5.19	4.75	3.72	3.48	3.22
31	2.09	---	2.93	4.93	---	5.03	---	5.17	---	3.69	3.46	---
MEAN	2.09	2.07	2.46	4.13	5.00	5.03	5.02	5.01	4.99	4.22	3.60	3.38
MAX	2.12	2.15	2.93	5.06	5.08	5.15	5.08	5.23	5.18	4.75	3.70	3.52
MIN	2.06	2.04	2.08	2.93	4.93	4.92	4.93	4.83	4.75	3.69	3.46	3.21

CAL YR 1976 MEAN 3.50 MAX 5.26 MIN 2.04
WTR YR 1977 MEAN 3.91 MAX 5.23 MIN 2.04

02044000 NOTTOWAY RIVER NEAR BURKEVILLE, VA

LOCATION.--Lat 37°04'40", long 78°11'50", Nottoway County, Hydrologic Unit 03010201, on left bank at downstream side of bridge on State Highway 723, 4.0 mi (6.4 km) upstream from Modest Creek, 5.6 mi (9.0 km) north of Victoria, and 7.5 mi (12.1 km) south of Burkeville.

DRAINAGE AREA.--38.7 mi^3 (100.2 km^2).

PERIOD OF RECORD.--September 1946 to current year.

REVISED RECORDS.--WSP 1383: 1946-47, 1949. WSP 1433: 1948. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 354.58 ft (108.076 m) above mean sea level. Prior to July 4, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good except those for January, which are poor. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--31 years, 36.7 ft^3/s (1.039 m^3/s), 12.88 in/yr (327 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,400 ft^3/s (379 m^3/s) Oct. 23, 1971, gage height, 22.33 ft (6.806 m), from rating curve extended above 3,200 ft^3/s (91 m^3/s) on basis of slope-area measurement of peak flow; no flow Aug. 29 to Oct. 14, 1954, Sept. 3-5, 12-15, 1963.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1930, 27.4 ft (8.35 m) in August 1940, from Corps of Engineers floodmark.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,200 ft^3/s (34 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 21	0100	1450	41.1	12.64	3.853	Sept. 9	1600	*2730	77.3	16.29	4.965

Minimum discharge, 0.02 ft^3/s (<0.001 m^3/s) Aug. 3, gage height, 1.20 ft (0.366 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	34	42	17	21	45	23	12	8.8	2.0	.03	.09
2	15	21	31	19	20	30	23	11	8.5	1.7	.03	.07
3	56	18	24	17	19	23	26	11	7.5	1.5	.03	.06
4	15	17	21	16	18	22	73	14	6.3	1.4	.03	.05
5	8.6	15	17	15	17	28	420	26	5.3	1.3	.03	.16
6	6.1	14	16	15	16	54	120	28	5.1	1.3	.04	.80
7	4.7	13	230	18	16	117	60	20	12	1.2	.07	.40
8	4.1	12	235	20	15	72	47	50	9.0	.53	.06	6.5
9	586	12	91	19	16	40	37	20	5.8	.40	.06	1100
10	85	13	56	47	17	30	31	14	7.0	.44	.03	93
11	24	14	54	58	18	25	28	12	5.8	11	.04	24
12	13	14	137	42	20	22	26	11	4.9	2.6	.09	16
13	9.7	18	98	35	34	35	23	10	4.7	5.5	.20	13
14	7.9	15	47	31	30	37	21	9.5	4.7	2.8	.07	9.0
15	6.7	15	39	88	21	24	19	8.5	5.1	1.0	.14	6.8
16	6.3	19	80	74	18	20	18	7.5	5.8	.63	.18	4.3
17	57	16	51	60	15	17	17	7.0	5.1	.44	.16	4.5
18	74	15	35	54	14	16	15	6.8	4.9	.36	4.1	7.0
19	24	14	27	42	14	16	14	6.3	4.7	.20	1.3	5.3
20	401	13	29	35	16	170	14	5.8	3.9	.18	.48	4.1
21	481	13	90	30	14	87	13	5.3	3.1	.16	.40	3.2
22	56	12	39	27	12	226	12	4.9	2.6	.12	.80	2.8
23	31	10	31	26	13	116	12	4.5	2.8	.18	.80	2.0
24	26	10	27	25	21	61	16	4.3	4.1	.26	.63	1.9
25	46	11	24	24	61	46	28	30	5.1	.18	7.5	1.8
26	178	11	63	23	30	38	17	74	5.8	.16	1.7	2.3
27	58	16	49	24	44	34	13	21	5.5	.09	.74	4.5
28	32	24	33	35	121	31	12	15	4.5	.07	.44	3.9
29	24	230	28	45	---	29	16	12	3.4	.07	.26	2.5
30	20	95	21	24	---	29	14	9.5	2.8	.05	.18	2.2
31	29	---	20	22	---	27	---	8.8	---	.03	.14	---
TOTAL	2389.1	754	1785	1027	691	1567	1208	479.7	164.6	37.85	20.76	1322.23
MEAN	77.1	25.1	57.6	33.1	24.7	50.5	40.3	15.5	5.49	1.22	.67	44.1
MAX	586	230	235	88	121	226	420	74	12	11	7.5	1100
MIN	4.0	10	16	15	12	16	12	4.3	2.6	.03	.03	.05
CFSM	1.99	.65	1.49	.86	.64	1.31	1.04	.40	.14	.03	.02	1.14
IN.	2.30	.72	1.72	.99	.66	1.51	1.16	.46	.16	.04	.02	1.27

CAL YR 1976 TOTAL 13384.96 MEAN 36.6 MAX 1440 MIN .10 CFSM .95 IN 12.87
WTR YR 1977 TOTAL 11446.24 MEAN 31.4 MAX 1100 MIN .03 CFSM .81 IN 11.00

02044500 NOTTOWAY RIVER NEAR RAWLINGS, VA

LOCATION.--Lat 36°59'00", long 77°48'00", Brunswick County, Hydrologic Unit 03010201, on right bank at downstream side of bridge on State Highway 612 at Harpers Bridge, 0.1 mi (0.2 km) upstream from Beaver Pond Creek, and 2.6 mi (4.2 km) northwest of Rawlings.

DRAINAGE AREA.--309 mi² (800 km²).

PERIOD OF RECORD.--October 1950 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 184.88 ft (56.351 m) above mean sea level.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--27 years, 295 ft³/s (8.354 m³/s), 12.96 in/yr (329 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,900 ft³/s (847 m³/s) Oct. 6, 1972, gage height, 23.25 ft (7.087 m), from rating curve extended above 16,000 ft³/s (450 m³/s) on basis of slope-area measurement of peak flow; minimum, 0.40 ft³/s (0.11 m³/s) Oct. 14, 15, 1954; minimum gage height, 1.83 ft (0.558 m) Oct. 15, 1954.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 20.8 ft (6.34 m), discharge, about 19,000 ft³/s (540 m³/s), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,230 ft³/s (63.2 m³/s) Oct. 22, gage height, 6.92 ft (2.109 m), no peak above base of 2,500 ft³/s (71 m³/s); minimum, 1.9 ft³/s (0.054 m³/s) Aug. 2-3, 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	227	428	185	182	554	242	178	118	36	2.3	25
2	100	215	265	162	175	357	212	169	114	37	1.9	21
3	251	201	208	159	162	293	212	82	105	36	2.5	24
4	260	188	178	172	161	296	234	150	90	27	4.9	24
5	175	234	166	172	158	316	520	339	78	22	4.9	17
6	123	223	159	175	155	396	1170	396	75	18	10	17
7	100	204	223	188	150	677	841	339	90	17	7.2	27
8	93	169	724	191	146	817	481	767	98	15	4.4	42
9	266	140	979	185	140	570	385	524	92	16	3.4	162
10	920	39	524	274	140	409	334	270	87	15	3.2	500
11	636	33	380	414	159	336	306	191	73	258	2.8	784
12	234	33	428	352	166	297	288	169	67	204	2.3	182
13	147	37	671	234	201	293	270	153	62	111	2.1	92
14	118	78	524	242	242	316	247	137	58	85	4.9	62
15	100	118	366	524	231	302	227	124	56	60	15	46
16	87	130	414	750	194	260	215	114	60	46	14	38
17	100	130	476	574	178	223	204	105	58	32	8.4	44
18	242	127	362	452	162	212	194	100	56	24	18	64
19	311	121	288	334	162	208	185	98	53	18	34	55
20	390	118	256	242	178	379	178	95	49	25	37	42
21	1570	111	316	204	185	844	172	87	42	44	49	42
22	1950	108	371	191	172	736	172	82	36	34	51	36
23	486	108	283	185	162	1010	188	78	36	36	62	27
24	288	105	238	175	166	736	178	75	46	30	84	24
25	238	103	215	175	265	466	219	134	55	32	87	24
26	334	105	234	191	320	366	238	476	64	153	90	22
27	590	118	306	204	279	311	204	580	62	159	75	25
28	371	146	288	219	582	274	182	242	55	118	58	24
29	242	231	242	212	---	251	185	159	47	53	44	24
30	201	590	208	204	---	274	182	143	42	24	38	25
31	219	---	198	188	---	270	---	124	---	3.8	29	---
TOTAL	11210	4490	10918	8129	5493	13007	8865	6578	2026	1788.8	824.2	2541
MEAN	362	150	352	262	196	420	296	212	67.5	57.7	26.7	84.7
MAX	1950	590	979	750	582	1010	1170	767	118	258	90	784
MIN	76	33	159	159	140	208	172	75	36	3.8	1.9	17
CFSM	1.17	.49	1.14	.85	.63	1.36	.96	.69	.22	.19	.09	.27
IN.	1.35	.54	1.31	.98	.66	1.57	1.07	.79	.24	.22	.10	.31

CAL YR 1976 TOTAL 100590.0 MEAN 275 MAX 3720 MIN 5.5 CFSM .89 IN 12.11
WTR YR 1977 TOTAL 75802.0 MEAN 208 MAX 1950 MIN 1.9 CFSM .67 IN 9.14

02045500 NOTTOWAY RIVER NEAR STONY CREEK, VA

LOCATION.--Lat 36°54'00", long 77°24'00", Sussex County, Hydrologic Unit 03010201, on left bank 15 ft (5 m) downstream from upstream bridge on U.S. Highway 301, 1.8 mi (2.9 km) upstream from Island Swamp, 3.3 mi (5.3 km) south of town of Stony Creek, and 4.4 mi (7.1 km) upstream from Stony Creek.

DRAINAGE AREA.--579 mi² (1,500 km²).

PERIOD OF RECORD.--October 1929 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 802: 1935(M). WSP 972: 1931(M), 1932, 1934-35, 1939. WSP 2104: Drainage area. WDR VA-74: 1972.

GAGE.--Water-stage recorder. Datum of gage is 58.42 ft (17.806 m) above mean sea level. Prior to Oct. 11, 1934, nonrecording gage at same site and datum.

REMARKS.--Records good except those for January, which are fair. Diurnal fluctuation at low flow caused by Baskerville Mill, 33 mi (53 km) upstream. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--48 years, 544 ft³/s (15.41 m³/s), 12.76 in/yr (324 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,200 ft³/s (714 m³/s) Aug. 17, 1940, gage height, 23.66 ft (7.212 m), from rating curve extended above 13,000 ft³/s (370 m³/s); minimum, 3.4 ft³/s (0.096 m³/s) Aug. 15, 16, 1977; minimum gage height, 0.62 ft (0.189 m) Sept. 2, 5, 1932.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,160 ft³/s (89.5 m³/s) Oct. 21, gage height, 12.54 ft (3.822 m), no peak above base of 3,500 ft³/s (99 m³/s); minimum, 3.4 ft³/s (0.096 m³/s) Aug. 15, 16 gage height, 1.69 ft (0.515 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	107	476	799	342	415	1130	572	303	267	88	13	35
2	129	422	552	298	377	878	528	284	239	83	21	29
3	291	376	402	271	355	684	503	275	224	79	15	26
4	362	344	322	294	345	603	508	220	206	77	13	35
5	313	320	283	302	361	1330	795	384	187	72	12	36
6	225	351	262	305	362	1170	1810	642	174	61	10	35
7	170	335	395	320	315	2030	1720	576	186	42	11	26
8	144	311	1220	380	289	2010	1000	782	202	30	12	32
9	243	286	1670	369	332	1460	749	984	192	41	11	78
10	630	248	1240	844	308	998	641	633	181	62	10	167
11	1090	167	809	1510	310	802	576	421	174	184	11	677
12	606	142	859	889	325	704	534	333	156	450	9.6	610
13	316	140	1170	642	403	938	499	297	144	283	8.0	206
14	223	141	1040	576	550	1370	465	273	136	187	6.5	125
15	183	165	755	1270	511	850	427	252	131	139	4.3	91
16	160	235	777	1540	465	721	397	235	129	113	8.7	73
17	149	246	844	1110	399	623	373	221	127	91	25	73
18	162	234	735	679	358	571	350	211	129	75	32	80
19	318	224	584	507	363	561	334	205	121	60	60	88
20	633	216	503	472	371	1010	319	198	116	50	32	87
21	2910	209	570	443	394	1760	309	192	109	44	33	71
22	2590	198	588	413	370	1720	299	186	101	38	33	58
23	1950	191	550	385	356	1780	292	181	96	35	41	56
24	669	188	475	360	365	1630	312	186	93	32	59	48
25	480	182	409	370	630	1070	384	262	88	28	108	40
26	572	180	462	387	651	828	406	613	97	39	116	36
27	744	183	575	410	641	721	375	828	104	50	95	35
28	741	207	546	460	1190	633	324	630	106	125	82	34
29	540	373	490	538	---	609	316	391	102	107	65	33
30	406	625	423	485	---	597	332	299	93	70	52	32
31	385	---	366	450	---	611	---	272	---	41	43	---
TOTAL	18489	7893	20691	17630	12099	32382	16449	11769	4390	2857	1052.1	3050
MEAN	596	263	667	569	432	1045	548	380	146	92.2	33.9	102
MAX	2910	625	1670	1540	1190	2030	1810	984	247	450	116	677
MIN	107	140	262	271	289	561	292	181	88	28	4.3	26
CFSM	1.03	.45	1.15	.98	.75	1.81	.95	.66	.25	.16	.06	.18
IN.	1.19	.51	1.33	1.13	.78	2.08	1.06	.76	.28	.18	.07	.20

CAL YR 1976 TOTAL 178427.0 MEAN 488 MAX 5180 MIN 15 CFSM .84 IN 11.46
WTR YR 1977 TOTAL 148751.1 MEAN 408 MAX 2910 MIN 4.3 CFSM .71 IN 9.56

02046000 STONY CREEK NEAR DINWIDDIE, VA

LOCATION.--Lat 37°04'01", long 77°36'10", Dinwiddie County, Hydrologic Unit 03010201, on right bank at upstream side of bridge on U.S. Highway 1, 1.2 mi (1.9 km) southwest of Dinwiddie, 1.7 mi (2.7 km) downstream from Chamberlains Bed Creek, and 5.7 mi (9.2 km) downstream from confluence of White Oak and Butterwood Creeks.

DRAINAGE AREA.--112 mi² (290 km²).

PERIOD OF RECORD.--September 1946 to current year. Published as "at Dinwiddie" September 1946 to September 1947 and October 1949 to September 1950.

REVISED RECORDS.--WSP 1303: 1947(M). WSP 1433: 1951(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 129.94 ft (39.606 m) above mean sea level. Prior to June 12, 1957, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--31 years, 106 ft³/s (3.002 m³/s), 12.85 in/yr (326 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,400 ft³/s (323 m³/s) Oct. 6, 1972, gage height, 20.84 ft (6.352 m), from rating curve extended above 5,800 ft³/s (160 m³/s) on basis of contracted-opening measurement of peak flow; no flow for part of Oct. 13, 1954.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 930 ft³/s (26.3 m³/s) Oct. 21, gage height, 7.24 ft (2.207 m), no peak above base of 1,200 ft³/s (34 m³/s); minimum daily, 0.17 ft³/s (0.005 m³/s) Aug. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	90	102	61	62	228	80	43	34	5.8	.65	6.1
2	14	72	74	51	57	134	71	38	31	8.2	.55	5.3
3	22	54	57	52	54	102	70	36	26	6.7	.45	4.6
4	24	47	48	52	53	102	88	48	21	7.4	.65	3.8
5	21	41	43	57	53	228	406	134	18	6.0	.87	3.5
6	18	35	40	60	52	254	539	124	18	5.6	.36	3.1
7	15	32	171	68	48	430	270	83	34	4.3	.28	3.3
8	13	29	438	77	47	350	163	226	34	3.5	.28	4.8
9	24	28	332	72	45	215	127	215	32	3.1	.18	10
10	64	27	196	196	50	154	108	105	28	3.0	.17	24
11	53	26	166	312	57	127	99	61	21	7.4	.36	23
12	34	28	230	170	61	113	90	47	18	50	.66	16
13	26	33	280	110	86	114	83	38	17	78	1.0	11
14	20	36	176	100	104	124	77	32	14	39	1.5	8.2
15	16	34	129	371	83	104	71	28	12	19	3.8	6.7
16	11	36	215	320	71	90	65	24	12	14	2.6	5.8
17	21	37	196	165	62	80	60	21	12	10	2.3	5.6
18	55	34	140	115	56	76	56	20	12	10	2.3	5.3
19	60	33	107	90	55	376	53	18	10	8.2	4.8	4.8
20	267	31	98	66	69	254	49	17	9.3	10	13	4.3
21	761	29	144	77	76	326	46	16	8.5	10	13	4.0
22	358	28	123	72	63	331	45	15	7.4	10	14	3.6
23	144	25	99	65	57	424	43	14	7.8	9.3	35	3.5
24	77	25	86	65	68	248	48	16	7.8	8.2	64	3.3
25	64	25	75	71	189	156	111	100	9.3	6.0	62	3.1
26	132	24	101	76	129	122	105	324	10	4.6	40	3.1
27	140	27	124	81	115	104	79	147	12	3.5	24	3.1
28	64	34	100	87	374	96	53	78	10	2.3	20	2.8
29	62	114	87	90	---	92	51	48	9.3	1.8	16	2.8
30	51	163	74	82	---	92	47	51	7.4	1.6	10	2.6
31	65	---	68	66	---	92	---	41	---	.77	8.2	---
TOTAL	2733	1275	4299	3408	2296	5740	3244	2208	502.8	357.27	340.96	191.1
MEAN	88.2	42.5	139	110	82.0	185	108	71.2	16.8	11.5	11.0	6.37
MAX	761	163	438	371	374	430	539	324	34	78	62	24
MIN	11	24	40	51	45	76	43	14	7.4	.77	.17	2.6
CFSM	.79	.38	1.24	.98	.73	1.65	.96	.64	.15	.10	.10	.06
IN.	.91	.42	1.43	1.13	.76	1.91	1.08	.73	.17	.12	.11	.06

CAL YR 1976 TOTAL 34007.83 MEAN 92.9 MAX 1260 MIN .81 CFSM .83 IN 11.30
WTR YR 1977 TOTAL 26595.13 MEAN 72.9 MAX 761 MIN .17 CFSM .65 IN 8.83

02047000 NOTTOWAY RIVER NEAR SEBRELL, VA

LOCATION.--Lat 36°46'13", long 77°09'59", Southampton County, Hydrologic Unit 03010201, on right bank 1,000 ft (305 m) upstream from bridge on State Highway 653, 1 mi (2 km) downstream from Three Creek, 2.5 mi (4.0 km) southwest of Sebrell, and 5.5 mi (8.8 km) upstream from Assamoosick Swamp.

DRAINAGE AREA.--1,421 mi² (3,680 km²).

PERIOD OF RECORD.--September 1941 to current year.

REVISED RECORDS.--WSP 1333: 1942, 1944, 1948-49. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 5.94 ft (1.811 m) above mean sea level. Prior to Aug. 23, 1950, nonrecording gage at same site and datum.

REMARKS.--Records good except those for January and February, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--36 years, 1,299 ft³/s (36.79 m³/s), 12.41 in/yr (315 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,000 ft³/s (736 m³/s) July 19, 1975, gage height, 24.43 ft (7.446 m); minimum observed, 12 ft³/s (0.34 m³/s) Oct. 23, 1941.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 29.7 ft (9.05 m), from floodmarks, discharge, 48,000 ft³/s (1,360 m³/s), from rating curve extended above 25,000 ft³/s (710 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,090 ft³/s (144 m³/s) Mar. 11, gage height, 15.10 ft (4.602 m); minimum, 17 ft³/s (0.48 m³/s) Aug. 17, gage height, 2.83 ft (0.863 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	154	1010	1200	1330	1240	2740	1580	646	806	121	81	81
2	237	1060	1490	1150	1120	3210	1460	594	758	114	58	68
3	286	1040	1350	1020	1000	3290	1350	559	736	111	51	57
4	430	956	1090	918	970	2910	1270	584	615	102	39	53
5	574	853	912	911	1020	2590	1300	748	435	95	28	56
6	579	769	796	923	1080	2870	1770	1300	324	92	22	53
7	475	738	754	961	1010	3410	2530	1760	282	86	26	50
8	377	719	1020	1030	895	3940	3040	1850	265	80	24	64
9	330	665	1960	1150	765	4500	3380	2140	308	68	21	63
10	404	580	2620	1540	790	4950	3230	2280	350	57	22	67
11	861	541	3000	2450	850	5000	2350	1950	345	92	21	123
12	1280	481	3170	3140	950	4290	1640	1270	301	180	20	414
13	1090	413	2970	3440	1100	3280	1330	819	253	417	20	702
14	683	399	2950	3200	1280	3010	1140	624	214	414	20	422
15	504	417	3030	2550	1530	3450	1050	513	192	310	19	232
16	396	475	2400	2300	1520	3900	947	436	179	233	18	159
17	319	583	2640	3000	1370	3730	859	377	166	176	18	129
18	281	649	2610	3450	1200	3060	789	335	159	137	38	110
19	259	643	2480	3000	1070	2460	736	302	155	114	56	105
20	414	610	2090	2000	1010	2220	687	277	150	95	68	109
21	1280	577	1790	1810	1010	2660	648	256	141	78	72	115
22	2400	544	1730	1800	1030	3370	616	239	133	69	62	106
23	3070	516	1780	1660	978	4080	588	224	127	60	55	88
24	3600	483	1700	1520	965	4640	572	222	121	51	61	75
25	4030	457	1490	1410	1010	4810	667	323	117	48	84	71
26	3440	444	1420	1300	1370	4580	873	628	114	47	123	64
27	2380	428	1510	1330	1690	3860	1010	1320	114	39	175	56
28	1990	431	1730	1430	2150	2900	933	1770	124	37	173	48
29	1800	515	1770	1500	---	2190	759	1490	130	62	142	44
30	1400	750	1650	1450	---	1830	668	1120	132	127	119	42
31	1120	---	1480	1350	---	1650	---	891	---	112	98	---
TOTAL	36453	18778	59082	56023	31913	105420	39812	27853	8255	3825	1834	3906
MEAN	1176	626	1906	1807	1140	3401	1327	898	275	123	59.2	130
MAX	4030	1060	3170	3450	2150	5000	3380	2280	806	417	175	702
MIN	154	399	754	911	765	1650	572	222	114	37	18	42
CFSM	.83	.44	1.34	1.27	.80	2.39	.93	.63	.19	.09	.04	.09
IN.	.95	.49	1.55	1.47	.84	2.76	1.04	.73	.22	.10	.05	.10

CAL YR 1976 TOTAL 446200 MEAN 1219 MAX 10500 MIN 43 CFSM .86 IN 11.68
WTR YR 1977 TOTAL 393154 MEAN 1077 MAX 5000 MIN 18 CFSM .76 IN 10.29

02047500 BLACKWATER RIVER NEAR DENDRON, VA

LOCATION.--Lat 37°01'30", long 76°52'30", Surry County, Hydrologic Unit 03010202, on left bank 10 ft (3 m) upstream from Walls Bridge on State Highway 617, 1.2 mi (1.9 km) downstream from Cypress Swamp, and 3.5 mi (5.6 km) southeast of Dendron.

DRAINAGE AREA.--294 mi^2 (761 km^2).

PERIOD OF RECORD.--October 1941 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 30.99 ft (9.446 m) above mean sea level (Corps of Engineers bench mark).

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--36 years, 302 ft^3/s (8.553 m^3/s), 13.95 in/yr (354 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,070 ft^3/s (144 m^3/s) June 5, 1963, gage height, 9.1 ft (2.77 m), from high-water mark in well; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 13.1 ft (3.99 m), from Corps of Engineers floodmarks, discharge, 10,000 ft^3/s (283 m^3/s), from rating curve extended above 4,800 ft^3/s (140 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,360 ft^3/s (38.5 m^3/s) Mar. 10, gage height, 5.03 ft (1.533 m); no flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	225	130	250	245	574	314	134	239	28	.00	5.2
2	35	198	165	230	230	808	284	138	183	26	.00	2.9
3	52	183	174	220	220	730	284	126	207	26	.00	1.2
4	64	174	171	210	230	610	248	118	168	16	.00	.25
5	74	162	160	200	240	986	260	204	109	14	.00	.00
6	54	148	174	190	245	646	284	256	77	16	.00	.00
7	36	132	229	210	230	880	314	336	66	16	.00	.00
8	26	120	260	230	210	936	350	604	46	60	.00	1.7
9	30	110	264	250	190	1100	405	646	47	60	.00	22
10	29	103	288	309	170	1180	475	568	47	95	.00	39
11	29	96	327	384	170	1030	520	425	35	93	.00	45
12	32	93	368	390	200	880	475	376	27	88	.00	36
13	36	92	405	400	240	916	400	332	22	102	.00	26
14	24	88	435	405	272	800	327	296	17	106	.00	20
15	22	95	450	420	284	896	264	254	15	100	.00	16
16	18	109	450	445	280	1070	219	207	13	82	.00	13
17	16	112	430	465	272	1040	183	150	10	83	.00	14
18	17	116	400	450	264	840	152	118	9.2	57	.00	14
19	16	119	386	440	260	646	136	88	10	40	.00	13
20	37	116	363	420	216	622	120	63	6.8	29	.00	11
21	150	110	358	390	195	640	112	44	7.1	17	.01	9.2
22	496	133	345	370	183	730	109	92	5.8	13	.06	8.0
23	628	96	345	350	168	703	103	26	8.5	11	.00	7.3
24	470	88	332	330	168	772	102	25	10	7.3	.00	6.0
25	336	83	314	310	180	808	110	74	12	3.0	3.8	4.6
26	304	80	304	300	195	800	114	160	11	2.4	24	3.3
27	276	77	292	292	253	676	119	232	10	1.1	32	1.6
28	280	78	296	300	360	544	110	260	10	.20	21	.60
29	304	102	296	300	---	455	118	186	26	.00	15	.11
30	284	116	292	285	---	400	119	152	36	.00	11	.00
31	260	---	276	270	---	358	---	268	---	.00	7.8	---
TOTAL	4464	3526	9495	10017	6391	23586	7122	6900	1484.4	1190.80	114.67	321.06
MEAN	144	118	306	323	228	761	237	223	49.5	38.4	3.70	10.7
MAX	628	225	450	465	360	1180	520	646	239	106	32	45
MIN	16	77	130	190	168	358	102	25	5.8	.00	.00	.00
CFSM	.49	.40	1.04	1.10	.78	2.59	.81	.76	.17	.13	.01	.04
IN.	.56	.45	1.20	1.27	.81	2.98	.90	.87	.19	.15	.01	.04

CAL YR 1976 TOTAL 92514.59 MEAN 253 MAX 2400 MIN .00 CFSM .86 IN 11.71
WTR YR 1977 TOTAL 74611.99 MEAN 204 MAX 1180 MIN .00 CFSM .69 IN 9.44

02049500 BLACKWATER RIVER AT ZUNI, VA

LOCATION.--Lat 36°52'05", long 76°50'07", Isle of Wight County, Hydrologic Unit 03010202, on left bank at downstream side of bridge on U.S. Highway 460 at Zuni, 1.6 mi (2.6 km) downstream from Pope Swamp, and 4.2 mi (6.8 km) upstream from Antioch Swamp.

DRAINAGE AREA.--456 mi^2 (1,181 km^2).

PERIOD OF RECORD.--October 1942 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 8.56 ft (2.609 m) above mean sea level. Prior to July 18, 1957, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--35 years, 474 ft^3/s (13.42 m^3/s), 14.12 in/yr (359 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,000 ft^3/s (198 m^3/s) Mar. 21, 1975; maximum gage height, 17.51 ft (5.337 m) June 5, 1963; no flow Sept. 10-18, 1944, Sept. 28 to Oct. 31, 1954, and part of each day Sept. 1, 2, 1976.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 23.2 ft (7.07 m), discharge, 16,000 ft^3/s (453 m^3/s), from rating curve extended above 5,500 ft^3/s (160 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 1,640 ft^3/s (46.4 m^3/s) Mar. 9-11; minimum discharge, 0.19 ft^3/s (0.005 m^3/s) Aug. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	532	224	568	515	925	720	196	337	11	2.5	12
2	21	408	236	468	480	1020	640	179	350	30	2.2	8.8
3	22	450	253	465	465	1120	560	176	420	45	2.4	6.1
4	26	405	267	435	465	1200	515	186	405	46	2.1	4.2
5	42	362	274	420	480	1250	515	209	362	40	1.7	2.6
6	86	326	274	405	480	1250	532	246	326	27	1.4	2.4
7	102	297	297	360	480	1350	550	293	274	22	1.1	2.1
8	96	281	435	405	450	1520	560	656	219	18	.95	2.2
9	84	260	550	420	405	1640	580	1150	186	58	.75	2.9
10	84	246	660	550	362	1640	568	1180	196	102	.55	3.0
11	77	219	750	800	350	1640	602	1100	161	124	.38	7.7
12	67	206	720	925	362	1580	640	900	120	166	.28	24
13	64	196	760	1150	435	1480	720	700	90	267	.22	42
14	59	179	780	1150	515	1350	680	960	74	350	.25	50
15	52	179	800	1250	560	1300	620	465	58	435	.28	43
16	44	204	860	1400	585	1290	532	390	45	405	.25	31
17	41	214	900	1440	560	1300	435	326	37	280	.60	22
18	39	219	880	1440	526	1400	382	281	31	214	4.3	16
19	36	224	860	1300	480	1350	306	229	25	176	11	13
20	38	229	805	1200	480	1300	267	186	19	166	4.0	8.6
21	122	224	780	1050	465	1300	236	136	15	126	4.1	6.3
22	179	219	740	925	435	1350	209	96	12	98	4.2	5.0
23	229	209	780	860	390	1440	189	74	11	76	2.9	3.6
24	382	204	680	760	376	1440	186	60	10	44	2.4	2.9
25	740	196	620	680	435	1440	204	127	9.8	25	2.1	5.1
26	860	179	640	640	450	1300	219	350	10	15	1.5	8.7
27	880	170	660	620	482	1220	219	450	9.6	11	1.2	2.1
28	680	166	680	602	740	1150	209	450	8.5	6.0	.90	.55
29	602	189	660	640	---	1050	209	450	7.4	4.8	1.5	.38
30	550	214	640	620	---	900	204	450	6.6	3.6	12	.70
31	532	---	602	550	---	800	---	420	---	3.0	19	---
TOTAL	6768	7690	18910	24578	13248	40235	13008	12677	3840.1	3390.2	92.01	330.33
MEAN	218	256	610	793	473	1298	434	409	128	109	2.97	11.0
MAX	880	532	900	1440	740	1640	720	1180	420	435	19	50
MIN	17	166	224	390	350	800	186	60	6.6	3.0	.22	.38
CFSM	.48	.56	1.34	1.74	1.04	2.85	.95	.90	.28	.24	.007	.03
IN.	.55	.63	1.54	2.01	1.08	3.28	1.06	1.03	.31	.28	.01	.03

CAL YR 1976 TOTAL 145087.26 MEAN 396 MAX 3770 MIN .01 CFSM .87 IN 11.84
WTR YR 1977 TOTAL 144783.44 MEAN 397 MAX 1640 MIN .22 CFSM .87 IN 11.81

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA
(National stream-quality accounting network station)

LOCATION.--Lat 36°45'45", long 76°53'55", Southampton County, Hydrologic Unit 03010202, on right bank 0.4 mi (0.6 km) south of Burdette, 0.5 mi (0.8 km) upstream from Black Creek, 3.3 mi (5.3 km) downstream from Corrowaugh Swamp, and 6.0 mi (9.7 km) north of Franklin.

DRAINAGE AREA.--617 mi² (1,598 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1944 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1.56 ft (0.475 m) above mean sea level.

REMARKS.--Records good except those for period of tide effect, July 31 to Sept. 30, which are poor. Low flow reversed by tide some years. Diversion above station by city of Norfolk for municipal supply most years.

AVERAGE DISCHARGE.--33 years, 629 ft³/s (17.81 m³/s), 13.84 in/yr (352 mm/yr), adjusted for diversion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,420 ft³/s (267 m³/s) Sept. 14, 1960, gage height, 17.14 ft (5.224 m), from floodmarks; minimum daily, 0.40 ft³/s (0.011 m³/s) Sept. 10, 1944, Oct. 28, 1970.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of about 22 ft (6.7 m), discharge, 21,000 ft³/s (595 m³/s), from rating curve extended above 9,400 ft³/s (270 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,140 ft³/s (60.6 m³/s) Mar. 9, gage height, 9.43 ft (2.874 m); minimum daily, 2.3 ft³/s (0.065 m³/s) Aug. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	565	296	613	607	1250	662	232	421	19	9.1	14
2	32	524	298	542	551	1280	643	207	421	22	7.2	13
3	56	496	296	555	514	1300	743	186	436	28	6.0	12
4	69	464	300	529	524	1360	669	177	431	39	5.2	10
5	87	431	305	506	562	1520	646	223	403	46	5.9	8.0
6	97	342	300	484	512	1640	676	286	376	46	5.2	8.8
7	108	357	363	491	483	1620	645	297	336	38	4.7	5.9
8	116	324	586	513	473	2060	640	479	280	32	3.9	5.1
9	111	293	754	525	448	2130	646	840	226	29	3.5	4.5
10	124	265	806	688	446	2110	648	1300	209	64	3.1	4.4
11	116	240	835	1070	437	2020	638	1440	198	71	2.7	4.8
12	101	217	883	1210	436	1920	636	1330	163	81	2.5	6.8
13	95	196	959	1360	473	1830	656	1080	131	97	2.3	15
14	88	188	962	1450	554	1720	677	810	108	170	4.1	33
15	88	162	942	1520	614	1630	663	627	86	235	4.5	38
16	60	222	964	1670	666	1540	614	516	66	284	5.2	35
17	46	253	1030	1760	642	1520	567	427	59	306	7.6	28
18	42	285	1050	1800	620	1520	476	350	56	258	12	22
19	37	269	1020	1650	565	1530	414	290	58	189	11	18
20	30	265	965	1450	580	1540	356	238	52	141	10	13
21	92	257	921	1250	567	1740	303	188	49	120	7.6	10
22	194	246	877	1070	571	1880	262	156	42	100	6.2	9.0
23	260	236	810	964	531	2040	227	130	36	78	4.7	8.1
24	326	224	776	830	502	2020	207	104	30	72	4.2	7.6
25	427	216	730	720	575	1920	223	131	27	60	3.6	9.3
26	611	200	725	680	626	1770	239	302	25	46	3.3	12
27	730	191	751	659	635	1610	254	489	24	33	3.0	13
28	746	186	770	680	905	1680	251	523	25	27	3.2	11
29	695	219	759	680	---	1360	266	502	29	17	3.6	7.8
30	630	274	729	663	---	1260	248	471	23	14	3.4	6.3
31	586	---	692	661	---	1100	---	451	---	12	10	---
TOTAL	6807	6243	22470	29330	15669	51670	15339	14775	4826	2753	170.9	391.6
MEAN	220	208	725	946	560	1667	511	477	161	88.8	5.51	13.0
MAX	746	565	1050	1800	905	2130	743	1440	436	306	13	38
MIN	26	162	296	484	436	1100	207	104	23	12	2.3	4.4
(*)	20.4	36.0	34.3	16.5	35.4	38.7	36.6	30.4	16.5	.99	.00	.00
MEAN+	240	244	759	962	596	1706	548	507	177	89.8	5.51	13.0
CFSM+	.39	.40	1.23	1.56	.96	2.76	.89	.82	.29	.15	.01	.02
IN+	.45	.44	1.42	1.80	1.00	3.18	.99	.94	.32	.17	.01	.02

CAL YR 1976 TOTAL 168853.7 MEAN 461 MAX 3820 MIN 2.6 MEAN+ 478 CFSM+ .77 IN+ 10.54
WTR YR 1977 TOTAL 172822.3 MEAN 473 MAX 2130 MIN 2.3 MEAN+ 496 CFSM+ .80 IN+ 10.89

* Diversion, in cubic feet per second, by city of Norfolk.
+ Adjusted for diversion.

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1947, 1952, 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	DIS-SOLVED OXYGEN (MG/L)	FECAL COLI-FORM .7UM-MF (COL./100 ML)	FECAL STREP-TOCOCCI KF AGAR (COL. PER 100 ML)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)
OCT												
29...	1100	702	130	6.6	8.5	--	--	--	--	--	--	--
NOV												
10...	1045	266	130	6.7	7.0	--	--	<60	<70	--	--	--
JAN												
13...	1115	1340	90	6.2	.5	4	--	32	28	28	20	9.2
FEB												
15...	1000	618	80	6.8	4.0	--	--	78	260	--	--	--
MAR												
14...	1015	1750	75	6.2	15.0	6	--	24	49	26	12	7.9
APR												
18...	1030	481	80	6.8	18.0	--	--	36	710	--	--	--
MAY												
20...	1030	242	40	7.0	19.5	--	--	420	720	--	--	--
JUN												
23...	1045	34	97	6.8	23.5	2	--	260	30	37	11	12
JUL												
22...	0930	103	95	7.0	27.0	--	4.6	150	37	--	--	--
AUG												
15...	1100	4.0	120	7.0	29.5	--	5.5	21	<12	--	--	--
SEP												
13...	1030	12	144	7.0	24.0	6	6.0	27	17	59	23	20

DATE	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)
OCT												
29...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
10...	--	--	--	--	--	--	--	--	--	--	--	--
JAN												
13...	1.3	4.0	1.6	10	0	10	15	8.8	.2	7.6	70	53
FEB												
15...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
14...	1.4	3.4	1.7	17	0	17	10	6.8	.0	4.3	78	44
APR												
18...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
20...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
23...	1.6	3.8	1.9	31	0	7.9	6.0	8.0	.1	8.4	96	59
JUL												
22...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
15...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
13...	2.1	5.4	2.8	44	0	7.0	14	7.3	.1	4.5	105	78

< Actual value is known to be less than the value shown.

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (NO3) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)	SUS-PENDED ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	SUS-PENDED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)
OCT 29...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 10...	.00	.51	.51	2.3	.01	--	--	--	--	--	--	--
JAN 13...	.35	.29	.64	2.9	.01	1	0	2	0	0	0	<10
FEB 15...	.27	.37	.64	2.8	.02	--	--	--	--	--	--	--
MAR 14...	.10	.63	.73	3.2	.02	0	0	0	1	0	1	20
APR 18...	.07	.88	.95	4.2	.06	--	--	--	--	--	--	--
MAY 20...	.18	.81	.99	4.4	.04	--	--	--	--	--	--	--
JUN 23...	.14	.40	.54	2.4	.06	4	1	3	0	0	0	<10
JUL 22...	.13	.72	.85	3.8	.04	--	--	--	--	--	--	--
AUG 15...	.02	.71	.73	3.2	.06	--	--	--	--	--	--	--
SEP 13...	.00	--	--	--	.04	1	1	0	0	0	0	<10

DATE	SUS-PENDED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	SUS-PENDED COBALT (CO) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	SUS-PENDED COPPER (CU) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	SUS-PENDED LEAD (PB) (UG/L)
OCT 29...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 10...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 13...	<9	1	0	0	0	2	2	0	300	150	6	1
FEB 15...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 14...	20	0	0	0	0	0	0	0	650	390	6	0
APR 18...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 20...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 23...	<7	3	0	0	0	2	2	0	1400	1200	5	0
JUL 22...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 15...	--	--	--	--	--	--	--	--	--	--	--	--
SEP 13...	10	0	0	0	0	3	3	0	740	210	0	0

< Actual value is known to be less than the value shown.

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	SUS-PENDED MAN-GANESE (MN) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	SUS-PENDED MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	SUS-PENDED SELE-NIUM (SE) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	SUS-PENDED ZINC (ZN) (UG/L)
OCT												
29...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
10...	--	--	--	--	--	--	--	--	--	--	--	--
JAN												
13...	3	40	0	40	.1	.0	.1	0	0	0	10	10
FEB												
15...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
14...	7	20	0	20	.0	.0	.0	0	0	0	30	20
APR												
18...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
20...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
23...	5	290	100	190	.1	.1	.0	0	0	0	20	10
JUL												
22...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
15...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
13...	0	490	250	240	.0	.0	.0	0	0	0	10	0

DATE	DIS-SOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	TOTAL ALDRIN (UG/L)	TOTAL CHLOR-DANE (UG/L)	TOTAL DDD (UG/L)	TOTAL DDE (UG/L)	TOTAL DDT (UG/L)	TOTAL DI-AZINON (UG/L)	TOTAL DI-ELDRIN (UG/L)	TOTAL ENDRIN (UG/L)
OCT										
29...	--	--	--	--	--	--	--	--	--	--
NOV										
10...	--	--	ND	ND	ND	ND	ND	ND	ND	ND
JAN										
13...	0	--	--	--	--	--	--	--	--	--
FEB										
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	ND	ND	ND	ND	ND	ND	ND	ND
MAR										
14...	10	--	--	--	--	--	--	--	--	--
APR										
18...	--	--	--	--	--	--	--	--	--	--
MAY										
20...	--	--	ND	ND	ND	ND	ND	ND	ND	ND
JUN										
23...	10	5.4	--	--	--	--	--	--	--	--
JUL										
22...	--	--	--	--	--	--	--	--	--	--
AUG										
15...	--	--	ND	ND	ND	ND	ND	ND	ND	ND
SEP										
13...	10	7.1	--	--	--	--	--	--	--	--

ND Not detected.

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL ETHION (UG/L)	TOTAL HEPTA-CHLOR (UG/L)	TOTAL HEPTA-CHLOR EPOXIDE (UG/L)	TOTAL LINDANE (UG/L)	TOTAL MALA-THION (UG/L)	TOTAL METH-OXY-CHLOR (UG/L)	TOTAL METHYL PARA-THION (UG/L)	TOTAL METHYL TRI-THION (UG/L)	TOTAL PARA-THION (UG/L)
OCT									
29...	--	--	--	--	--	--	--	--	--
NOV									
10...	ND	ND	ND	ND	ND	ND	ND	ND	ND
JAN									
13...	--	--	--	--	--	--	--	--	--
FEB									
15...	--	--	--	--	--	--	--	--	--
15...	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAR									
14...	--	--	--	--	--	--	--	--	--
APR									
18...	--	--	--	--	--	--	--	--	--
MAY									
20...	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUN									
23...	--	--	--	--	--	--	--	--	--
JUL									
22...	--	--	--	--	--	--	--	--	--
AUG									
15...	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEP									
13...	--	--	--	--	--	--	--	--	--

DATE	TOTAL TOX-APHENE (UG/L)	TOTAL TRI-THION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)	TOTAL PHYTO-PLANK-TON (CELLS PER ML)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
OCT									
29...	--	--	--	--	--	--	17	32	73
NOV									
10...	ND	ND	ND	ND	ND	4	21	15	66
JAN									
13...	--	--	--	--	--	440	--	--	--
FEB									
15...	--	--	--	--	--	99	8	13	67
15...	ND	ND	ND	ND	ND	--	--	--	--
MAR									
14...	--	--	--	--	--	--	7	33	90
APR									
18...	--	--	--	--	--	--	35	45	53
MAY									
20...	ND	ND	ND	ND	ND	110	50	33	60
JUN									
23...	--	--	--	--	--	1900	16	1.5	71
JUL									
22...	--	--	--	--	--	280	7	1.9	100
AUG									
15...	ND	ND	ND	ND	ND	14000	11	.12	100
SEP									
13...	--	--	--	--	--	110000	8	.26	100

ND Not detected.

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

PHYTOPLANKTON

DATE TIME	NOV 10.76 1045	JAN 13.77 1115	FEB 15.77 1000	MAY 20.77 1030
TOTAL CELLS/ML	4	440	99	110
DIVERSITY: DIVISION	0.0	0.5	1.6	1.6
.CLASS	0.0	0.5	1.6	1.6
..ORDER	0.0	0.5	2.0	1.6
...FAMILY	0.0	0.5	2.4	1.7
....GENUS	0.0	0.5	2.8	2.5
	0.0	0.5	2.9	0.0

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...COCYSTACEAE	--	-	--	-	--	-	3	3
...CHARACIACEAE								
....SCHROEDERIA	--	-	--	-	--	-	--	-
...COELASTRACEAE								
....COELASTRUM	--	-	--	-	--	-	13	13
...HYDRODICTYACEAE								
....PEDIASTRUM	--	-	--	-	--	-	--	-
...MICRACTINIACEAE								
....GOLENKINIA	--	-	--	-	--	-	--	-
....MICRACTINIUM	--	-	--	-	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	--	-	11	11	--	-
....CHODATELLA	--	-	--	-	--	-	--	-
....CLOSTERIDIUM	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	28#	25
....POLYEDRIOPSIS	--	-	--	-	--	-	--	-
....SELENASTRUM	--	-	4	1	--	-	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
....ACTINASTRUM	--	-	--	-	--	-	--	-
....CRUCIGENIA	--	-	--	-	15	15	--	-
....SCENEDESMUS	*	0	--	-	--	-	7	6
....TETRASTRUM	--	-	--	-	--	-	--	-
..TETRASPORALES								
...PALMELLACEAE								
....GLOEOCYSTIS	--	-	--	-	--	-	--	-
....SPHAEROCYSTIS	--	-	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	12	3	11	11	--	-
..ZYGNEMATALES								
...DESMIDIACEAE								
....CLOSTERIUM	*	0	--	-	--	-	--	-
....COSMARIUM	--	-	--	-	--	-	--	-
....STAURASTRUM	--	-	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	--	-	--	-	--	-	--	-
....MELOSIRA	--	-	--	-	--	-	3	3
..PENNALES								
...CYMBELLACEAE								
....CYMBELLA	--	-	--	-	--	-	--	-
...DIATOMACEAE								
....DIATOMA	--	-	--	-	--	-	--	-
...FRAGILARIACEAE								
....SYNEDRA	4#	100	4	1	--	-	3	3
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	--	-	--	-	3	3
...MERIDIONACEAE								
....MERIDION	--	-	4	1	4	4	--	-
...NAVICULACEAE								
....GYROSIGMA	--	-	--	-	--	-	--	-
....NAVICULA	*	0	--	-	--	-	*	0
...NITZSCHIACEAE								
....NITZSCHIA	--	-	--	-	--	-	3	3
...SURIRELLACEAE								
....SURIRELLA	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

CHOWAN RIVER BASIN

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

PHYTOPLANKTON

DATE TIME	NOV 10,76 1045		JAN 13,77 1115		FEB 15,77 1000		MAY 20,77 1030	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...MALLOMONADACEAE								
....MALLOMONAS	--	-	--	-	4	4	--	-
...SYNURACEAE								
....SYNURA	--	-	--	-	22*	22	--	-
.XANTHOPHYCEAE								
..HETEROCOCCALES								
...CENTRITRACTACEAE								
....CENTRITRACTUS	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	--	-	--	-	--	-	--	-
....ANACYSTIS	--	-	--	-	--	-	40*	38
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE								
....LYNGBYA	--	-	410*	93	--	-	--	-
....OSCILLATORIA	--	-	--	-	--	-	--	-
....PHORMIDIUM	--	-	--	-	--	-	--	-
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....GOMPHOSPHAERIA	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.CRYPTOPHYCEAE								
..CRYPTOMONIDALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	--	-	--	-	--	-	--	-
...CRYPTOMONODACEAE								
....CRYPTOMONAS	--	-	8	2	22*	22	--	-
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....CRYPTOGLENA	--	-	--	-	7	7	--	-
....EUGLENA	--	-	--	-	--	-	--	-
....PHACUS	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	--	-	6	6	3	3
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	--	-	--	-	--	-	--	-

NOTE: * - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
- OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

PHYTOPLANKTON

DATE	JUN 23,77		JUL 22,77		AUG 15,77		SEP 13,77	
TIME	1045		0930		1100		1030	
TOTAL CELLS/ML	1900		260		14000		110000	
DIVERSITY: DIVISION	1.4		0.7		1.7		0.7	
.CLASS	1.6		0.7		1.7		0.7	
..ORDER	2.1		0.7		2.0		0.9	
...FAMILY	2.2		1.5		2.5		1.0	
....GENUS	2.4		1.5		3.1		1.1	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...OOCYSTACEAE	--	-	--	-	--	-	--	-
...CHARACIACEAE								
....SCHROEDERIA	--	-	--	-	*	0	--	-
...COELASTRACEAE								
....COELASTRUM	--	-	--	-	--	-	--	-
...HYDRODICTYACEAE								
....PEDIASTRUM	--	-	--	-	--	-	*	0
...MICRACTINIACEAE								
....GOLENKINIA	--	-	--	-	--	-	*	0
....MICRACTINIUM	--	-	--	-	--	-	*	0
...OOCYSTACEAE								
....ANKISTRODESMUS	38	2	--	-	530	4	1400	1
....CHODATELLA	*	0	--	-	--	-	--	-
....CLOSTERIDIUM	*	0	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	3400#	24	--	-
....KIRCHNERIELLA	13	1	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	*	0
....POLYEDRIOPSIS	--	-	--	-	--	-	*	0
....SELENASTRUM	--	-	--	-	220	2	--	-
....TETRAEDRON	*	0	--	-	--	-	*	0
...SCENEDESMACEAE								
....ACTINASTRUM	--	-	--	-	220	2	960	1
....CRUCIGENIA	--	-	--	-	780	5	--	-
....SCENEDESMUS	160	8	--	-	940	7	1300	1
....TETRASTRUM	--	-	--	-	--	-	960	1
..TETRASPORALES								
...PALMELLACEAE								
....GLOEOCYSTIS	--	-	--	-	470	3	--	-
....SPHAEROCYSTIS	--	-	--	-	--	-	*	0
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	50	3	--	-	--	-	*	0
..ZYGNEMATALES								
...DESMIDIACEAE								
....CLOSTERIUM	--	-	--	-	--	-	--	-
....COSMARIUM	--	-	--	-	--	-	*	0
....STAURASTRUM	--	-	--	-	*	0	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	--	-	--	-	140	1	*	0
....MELOSIRA	25	1	--	-	2200#	15	3800	4
..PENNALES								
...CYMBELLACEAE								
....CYMBELLA	--	-	16	6	--	-	--	-
...DIATOMACEAE								
....DIATOMA	--	-	32	11	--	-	--	-
...FRAGILARIACEAE								
....SYNEDRA	--	-	--	-	--	-	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	--	-	*	0	--	-
...MERIDIONACEAE								
....MERIDION	--	-	--	-	--	-	--	-
...NAVICULACEAE								
....GYROSIGMA	*	0	--	-	--	-	--	-
....NAVICULA	19	1	--	-	--	-	--	-
...NITZSCHIACEAE								
....NITZSCHIA	25	1	--	-	*	0	--	-
...SURIRELLACEAE								
....SURIRELLA	*	0	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
      * - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

PHYTOPLANKTON

DATE TIME	JUN 23,77 1045		JUL 22,77 0930		AUG 15,77 1100		SEP 13,77 1030	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...MALLOMONADACEAE								
....MALLOMONAS	44	2	--	-	--	-	--	-
...SYNURACEAE								
....SYNURA	--	-	--	-	--	-	--	-
.XANTHOPHYCEAE								
..HETEROCOCCALES								
...CENTRITRACTACEAE								
....CENTRITRACTUS	*	0	--	-	*	0	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	200	10	--	-	170	1	--	-
....ANACYSTIS	850#	45	--	-	3900#	28	90000#	85
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	--	-	170#	68	--	-	4100	4
...OSCILLATORIACEAE								
....LYNGBYA	--	-	--	-	--	-	--	-
....OSCILLATORIA	180	9	--	-	340	3	--	-
....PHORMIDIUM	--	-	66#	23	--	-	--	-
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....GOMPHOSPHAERIA	100	5	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	--	-	--	-	--	-	*	0
...CRYPTOMONADACEAE								
....CRYPTOMONAS	44	2	--	-	--	-	--	-
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....CRYPTOGLENA	--	-	--	-	--	-	--	-
....EUGLENA	*	0	--	-	--	-	*	0
....PHACUS	--	-	--	-	170	1	*	0
....TRACHELOMONAS	100	5	--	-	340	3	1300	1
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	38	2	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

PERIPHYTON

Date	Length of exposure (days)	Biomass (g/m^2)		Chlorophyll a (mg/m^2)	Chlorophyll b (mg/m^2)	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight				
May 20	31	394	315	0.02	0.00	2724	Polyethylene strip

02051000 NORTH MEHERRIN RIVER NEAR LUNENBURG, VA

LOCATION.--Lat 36°59'50", long 78°21'00", Lunenburg County, Hydrologic Unit 03010204, on right bank at downstream side of bridge on State Highway 40, 0.5 mi (0.8 km) downstream from Tusekiah Creek, 4.6 mi (7.4 km) upstream from Juniper Creek, and 5.2 mi (8.4 km) northwest of Lunenburg.

DRAINAGE AREA.--55.6 mi² (144.0 km²).

PERIOD OF RECORD.--August 1946 to current year.

REVISED RECORDS.--WSP 1303: 1947(M), 1949(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 333.7 ft (101.71 m) above mean sea level (levels by Corps of Engineers). Prior to July 5, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period of no gage-height record, Dec. 25 to Jan. 25, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--31 years, 49.9 ft³/s (1.413 m³/s), 12.19 in/yr (310 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,400 ft³/s (408 m³/s) Oct. 23, 1971, gage height, 28.30 ft (8.626 m), from rating curve extended above 1,700 ft³/s (48 m³/s) on basis of slope-area measurement of peak flow; no flow Sept. 5-21, Oct. 8-14, 1954.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 48 ft (14.6 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,200 ft³/s (62 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1100	2450	69.4	14.39	4.386	Sept. 9	1145	*3120	88.4	16.80	5.121
Oct. 20	1730	2390	67.7	14.12	4.304						

Minimum discharge, 0.52 ft³/s (0.015 m³/s) Aug. 11, 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	41	51	25	22	59	30	17	15	5.6	.92	1.0
2	34	29	40	29	22	44	30	17	14	4.9	.93	.85
3	107	24	33	26	23	38	34	16	12	4.2	1.0	.75
4	20	23	31	24	24	37	80	18	9.9	4.0	1.1	.65
5	11	21	28	23	23	42	565	38	9.2	4.0	1.0	1.1
6	8.2	19	26	21	23	89	130	52	10	3.8	.89	1.5
7	7.0	19	341	27	22	142	72	56	24	3.5	1.1	2.4
8	16	18	236	28	21	86	57	85	12	3.2	.89	27
9	1130	17	94	30	22	57	47	33	11	3.0	.72	866
10	76	17	65	70	23	46	42	23	12	2.8	.60	63
11	28	18	62	90	24	40	39	19	9.4	11	.56	23
12	18	18	107	60	28	38	36	18	8.8	12	.70	13
13	14	20	101	52	49	64	33	16	8.6	25	1.2	9.4
14	12	18	56	45	42	60	31	15	8.5	7.2	1.5	7.6
15	10	19	52	130	33	42	29	13	10	4.7	1.2	6.4
16	10	23	100	110	30	37	27	12	9.8	3.8	1.4	5.9
17	77	20	62	88	26	33	25	12	8.8	3.1	1.7	8.9
18	70	19	45	80	25	32	24	11	8.2	2.6	3.8	7.6
19	28	18	39	62	26	30	23	11	7.4	2.2	3.2	5.5
20	977	18	45	52	30	251	22	11	6.6	2.0	1.9	4.6
21	249	17	109	45	26	99	21	9.7	6.0	2.0	1.5	3.9
22	63	17	58	40	24	344	21	9.3	5.3	2.7	2.1	3.5
23	37	16	42	37	24	129	19	9.2	6.5	2.4	1.8	3.3
24	34	15	40	35	48	72	26	10	9.4	1.8	6.4	3.5
25	70	16	36	34	87	54	38	57	10	1.5	7.8	3.5
26	255	16	96	30	49	46	24	97	13	1.5	3.3	4.9
27	67	24	70	32	99	40	20	28	9.1	1.5	2.1	6.4
28	40	30	54	44	129	38	19	18	7.7	1.2	1.7	4.6
29	32	356	43	52	---	37	22	15	7.2	1.1	1.4	3.8
30	28	101	33	26	---	37	19	18	6.2	1.0	1.2	3.5
31	42	---	30	22	---	36	---	15	---	1.0	1.1	---
TOTAL	3575.8	1027	2297	1469	1024	2199	1605	779.2	295.6	130.3	56.71	1097.05
MEAN	115	34.2	74.1	47.4	36.6	70.9	53.5	25.1	9.85	4.20	1.83	36.6
MAX	1130	356	341	130	129	344	565	97	24	25	7.8	866
MIN	5.6	15	26	21	21	30	19	9.2	5.3	1.0	.56	.65
CFSM	2.07	.62	1.33	.85	.66	1.28	.96	.45	.18	.08	.03	.66
IN.	2.39	.69	1.54	.98	.69	1.47	1.07	.52	.20	.09	.04	.73

CAL YR 1976 TOTAL 18467.00 MEAN 50.5 MAX 1700 MIN 1.2 CFSM .91 IN 12.36
WTR YR 1977 TOTAL 15555.66 MEAN 42.6 MAX 1130 MIN .56 CFSM .77 IN 10.41

02051500 MEHERRIN RIVER NEAR LAWRENCEVILLE, VA

LOCATION.--Lat 36°43'00", long 77°49'55", Brunswick County, Hydrologic Unit 03010204, on right bank 50 ft (15 m) upstream from Gholson Bridge on State Highway 715, 0.6 mi (1.0 km) upstream from Allen Creek, and 3.0 mi (4.8 km) southeast of Lawrenceville.

DRAINAGE AREA.--552 mi^2 (1,430 km^2).

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1932(M), 1935. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 136.56 ft (41.623 m) above mean sea level. Prior to Nov. 17, 1931, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--49 years, 485 ft^3/s (13.74 m^3/s), 11.93 in/yr (303 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,000 ft^3/s (1,080 m^3/s) Aug. 17, 1940, gage height, 42.0 ft (12.80 m), from floodmark, from rating curve extended above 13,000 ft^3/s (370 m^3/s) on basis of velocity-area studies and records for Nottoway River near Stony Creek; minimum, 4.2 ft^3/s (0.12 m^3/s) Oct. 7, 8, 1954; minimum gage height, 0.72 ft (0.219 m) Sept. 23, 24, 1932.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,080 ft^3/s (144 m^3/s) at 0300 hours Oct. 22, gage height, 16.65 ft (5.075 m), no other peak above base of 4,500 ft^3/s (130 m^3/s); minimum, 20 ft^3/s (0.57 m^3/s) Aug. 14, 15, gage height, 1.27 ft (0.387 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	308	638	266	322	1220	355	230	191	88	31	47
2	804	318	379	217	295	648	324	225	178	96	53	43
3	2070	270	300	232	287	489	329	220	180	122	40	39
4	528	242	253	273	300	516	373	290	165	92	41	36
5	272	229	229	247	317	839	766	980	145	79	38	39
6	161	216	223	240	307	900	2820	756	143	72	33	47
7	122	203	411	259	280	2350	1020	477	166	66	35	52
8	106	195	1900	270	279	2120	617	351	153	61	35	66
9	591	187	1760	257	267	1050	497	400	152	57	34	118
10	3040	183	802	690	277	705	420	295	147	56	29	893
11	612	180	579	1150	286	967	390	235	134	164	24	373
12	272	183	810	717	288	493	365	215	129	466	23	146
13	185	188	1650	469	344	727	341	200	125	148	36	81
14	174	186	903	448	472	773	322	185	120	234	22	50
15	151	192	594	1270	450	612	303	175	124	140	73	41
16	136	204	606	1610	359	466	287	165	123	90	65	36
17	132	196	853	1090	320	404	274	160	122	72	46	128
18	271	192	574	740	285	372	261	155	140	61	68	169
19	457	185	433	508	287	353	250	152	126	54	75	75
20	778	179	383	397	315	658	242	148	114	49	83	52
21	4350	175	436	375	329	1970	236	141	102	46	74	41
22	3270	171	651	360	310	1170	230	137	94	49	59	34
23	594	163	435	351	283	2240	220	135	92	66	52	30
24	393	158	366	341	309	1080	237	143	101	53	498	28
25	334	157	313	328	553	680	294	224	110	47	315	26
26	529	158	353	343	738	532	310	838	140	45	123	27
27	1120	161	480	350	538	461	251	763	141	41	111	24
28	516	186	474	351	1540	418	230	335	148	37	79	25
29	351	321	367	401	---	394	220	228	126	35	64	22
30	295	1180	322	450	---	385	235	187	99	34	57	21
31	297	---	292	410	---	386	---	188	---	32	51	---
TOTAL	22970	7066	18723	15399	10937	25878	13027	9333	4038	2752	2767	2809
MEAN	741	236	604	497	391	835	434	301	135	88.8	89.3	93.6
MAX	4350	1180	1900	1610	1540	2350	2820	980	191	466	498	893
MIN	59	157	223	217	267	353	220	135	92	32	22	21
CFSM	1.34	.43	1.09	.90	.71	1.51	.79	.55	.25	.16	.16	.17
IN.	1.55	.48	1.26	1.04	.74	1.74	.88	.63	.27	.19	.19	.19

CAL YR 1976 TOTAL 162677 MEAN 444 MAX 6800 MIN 19 CFSM .80 IN 10.96
WTR YR 1977 TOTAL 135699 MEAN 372 MAX 4350 MIN 21 CFSM .67 IN 9.14

02051600 GREAT CREEK NEAR COCHRAN, VA

LOCATION.--Lat 36°48'46", long 77°55'19", Brunswick County, Hydrologic Unit 03010204, on left bank at upstream side of bridge on State Highway 618, 1.4 mi (2.3 km) southwest of Cochran, and 9.5 mi (15.3 km) upstream from Roses Creek.

DRAINAGE AREA.--30.7 mi² (79.5 km²).

PERIOD OF RECORD.--May 1958 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 215.72 ft (65.751 m) above mean sea level.

REMARKS.--Records good except those for period of no gage-height record, Dec. 16 to Jan. 25, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--19 years, 28.9 ft³/s (0.818 m³/s), 12.78 in/yr (325 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,030 ft³/s (199 m³/s) Oct. 6, 1972, gage height, 16.65 ft (5.075 m), from rating curve extended above 1,600 ft³/s (45 m³/s) on basis of contracted-opening measurements at gage heights 12.08 ft (3.682 m), 14.57 ft (4.441 m), and 16.65 ft (5.075 m); minimum, 0.10 ft³/s (0.003 m³/s) Oct. 11, 12, 1965, Sept. 23, 1968; minimum gage height, 1.50 ft (0.457 m) Aug. 19, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 322 ft³/s (9.12 m³/s) at 0700 hours Oct. 21, gage height, 6.43 ft (1.960 m), no other peak above base of 300 ft³/s (8.5 m³/s); minimum, 0.50 ft³/s (0.014 m³/s) Aug. 13, 14-17, gage height, 1.70 ft (0.518 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.6	23	20	16	19	41	26	13	9.2	3.1	.67	.70
2	49	16	17	15	18	35	25	13	8.7	3.1	.65	.69
3	70	15	16	14	17	30	29	12	7.6	2.8	.65	.67
4	21	14	14	14	17	34	32	13	6.6	2.7	.79	.65
5	13	13	14	14	17	69	90	19	5.8	2.3	.67	2.5
6	10	13	16	15	16	94	72	19	6.2	2.0	.65	3.0
7	8.7	12	56	16	16	163	41	14	7.2	1.9	.61	1.5
8	7.9	12	103	17	17	100	36	14	6.6	1.7	.61	4.4
9	83	11	62	22	18	56	31	12	6.6	1.6	.59	16
10	58	10	41	30	20	45	29	11	6.6	1.7	.59	8.2
11	22	10	39	43	20	40	28	11	5.8	77	.59	4.4
12	15	10	70	33	20	36	25	11	5.6	17	.56	3.1
13	13	11	64	29	36	43	24	10	5.2	7.7	.53	2.1
14	12	11	40	27	33	39	22	9.7	4.8	5.2	.50	1.6
15	11	12	37	38	26	32	21	9.0	5.4	3.8	.50	1.2
16	9.5	15	50	70	23	30	20	9.0	5.6	3.0	.50	1.6
17	11	14	38	60	21	27	19	8.2	5.6	2.1	.50	16
18	15	13	30	38	19	26	17	8.2	7.0	2.0	1.6	7.7
19	13	13	25	27	21	26	16	7.7	5.6	1.7	.96	4.2
20	97	12	24	23	26	44	16	7.2	4.6	1.7	.83	2.8
21	205	12	38	19	23	66	15	7.0	3.6	2.0	.69	2.1
22	39	12	29	18	20	94	14	6.6	3.3	1.9	.69	1.7
23	23	11	25	17	20	82	14	8.2	4.2	1.6	.70	1.6
24	17	11	21	19	27	68	18	11	5.0	1.6	13	1.6
25	20	11	20	22	42	60	23	33	7.0	1.6	4.9	1.2
26	40	11	32	23	30	36	17	42	8.2	1.2	5.8	1.2
27	27	13	28	25	34	33	15	17	7.6	.96	2.3	1.2
28	19	24	22	27	77	31	14	12	5.6	.83	1.7	1.1
29	18	36	19	25	---	30	17	9.2	4.6	.70	1.6	.96
30	15	29	18	22	---	31	14	7.9	3.8	.69	1.1	.94
31	23	---	17	21	---	30	---	8.7	---	.67	.96	---
TOTAL	989.7	430	1045	799	693	1571	780	393.6	178.6	157.65	47.59	94.81
MEAN	31.9	14.3	33.7	25.8	24.8	50.7	26.0	12.7	5.95	5.08	1.54	3.16
MAX	205	36	103	70	77	163	90	42	9.2	77	13	16
MIN	4.6	10	14	14	16	26	14	6.6	3.3	.67	.50	.65
CFSM	1.04	.47	1.10	.84	.81	1.65	.85	.41	.19	.17	.05	.10
IN.	1.20	.52	1.27	.97	.84	1.90	.95	.48	.22	.19	.06	.11

CAL YR 1976 TOTAL 8809.16 MEAN 24.1 MAX 298 MIN .96 CFSM .79 IN 10.67
WTR YR 1977 TOTAL 7179.77 MEAN 19.7 MAX 205 MIN .50 CFSM .64 IN 8.70

CHOWAN RIVER BASIN

02052000 MEHERRIN RIVER AT EMPORIA, VA

LOCATION.--Lat 36°41'24", long 77°32'27", Emporia City, Hydrologic Unit 03010204, on left bank at downstream side of bridge on U.S. Highway 301 and 1.2 mi (1.9 km) upstream from Falling Run.

DRAINAGE AREA.--747 mi² (1,935 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1951 to current year.

REVISED RECORDS.--WSP 2106: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 67.17 ft (20.473 m) above mean sea level (levels by Corps of Engineers).

REMARKS.--Records good except those for period of no gage-height record, Mar. 9 to Apr. 19, which are fair. Prior to November 1965, low and medium flow regulated by powerplant 0.8 mi (1.3 km) above station.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--26 years, 660 ft³/s (18.69 m³/s), 12.00 in/yr (305 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,100 ft³/s (598 m³/s) Oct. 8, 1972, gage height, 27.38 ft (8.345 m); minimum, 5.0 ft³/s (0.14 m³/s) Nov. 11, 1954, gage height, 1.00 ft (0.305 m); minimum daily, 8.0 ft³/s (0.23 m³/s) Nov. 8-10, 1954.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 31.5 ft (9.60 m), from floodmarks, discharge, about 40,000 ft³/s (1,100 m³/s), from rating curve extended above 18,000 ft³/s (510 m³/s) on basis of record for station near Lawrenceville.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,640 ft³/s (160 m³/s) Oct. 22, gage height, 17.83 ft (5.435 m), no peak above base of 6,000 ft³/s (170 m³/s); minimum, 25 ft³/s (0.71 m³/s) Aug. 14, gage height, 1.44 ft (0.439 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	502	1240	469	486	2220	550	330	257	115	34	66
2	602	469	677	395	440	1260	560	311	248	111	34	58
3	2980	436	480	365	430	884	500	302	232	127	44	53
4	1440	365	405	436	430	780	600	370	223	131	50	48
5	592	335	345	436	420	1490	800	661	204	107	44	46
6	296	305	335	415	410	1520	1500	1390	189	86	39	44
7	180	285	551	458	400	2690	4000	764	206	76	35	49
8	156	276	1790	536	380	3300	2900	626	201	74	36	107
9	375	258	2760	458	380	2200	1000	516	192	68	38	167
10	2470	258	1680	1310	430	1000	700	472	187	74	38	486
11	2000	249	1070	2120	450	900	600	350	173	170	32	806
12	511	258	1250	1520	440	800	580	302	159	512	29	266
13	256	258	2200	945	549	760	550	275	155	311	26	143
14	186	258	1900	797	692	1000	500	257	151	216	25	106
15	150	285	1070	1620	740	1100	470	248	144	260	27	92
16	131	315	995	2350	604	900	450	232	147	136	52	81
17	129	305	1200	1660	516	700	440	223	144	154	66	130
18	139	285	1070	956	472	600	420	206	160	87	78	293
19	473	267	773	670	450	500	410	203	165	76	78	192
20	978	267	677	582	496	700	400	192	147	65	81	115
21	4180	258	773	549	516	1200	390	187	120	56	84	95
22	5360	249	895	510	494	2700	370	179	115	58	81	78
23	2130	231	821	505	461	1600	360	173	111	52	70	70
24	773	222	629	527	483	3200	370	191	112	50	1060	65
25	591	213	546	549	880	1500	410	320	135	95	1100	61
26	677	213	653	560	1110	1000	496	760	167	51	448	56
27	1340	231	773	582	980	800	420	1210	170	44	155	54
28	1020	267	845	582	1790	700	350	626	178	41	112	52
29	605	469	677	560	---	600	330	350	178	38	98	49
30	469	1100	957	538	---	580	330	275	135	35	82	47
31	460	---	513	516	---	570	---	248	---	34	72	---
TOTAL	31658	9689	30230	24476	16315	39762	20756	12750	5123	3398	4026	4059
MEAN	1021	323	975	789	583	1282	692	411	171	110	130	135
MAX	5360	1100	2760	2350	1790	3300	4000	1390	257	512	1100	806
MIN	82	213	335	365	380	500	330	173	111	34	25	44
CFSM	1.37	.43	1.31	1.06	.78	1.72	.93	.55	.23	.15	.17	.18
IN.	1.58	.48	1.51	1.22	.81	1.98	1.03	.63	.26	.17	.20	.20

CAL YR 1976 TOTAL 237292 MEAN 648 MAX 7700 MIN 67 CFSM .87 IN 11.82
WTR YR 1977 TOTAL 202218 MEAN 554 MAX 5360 MIN 25 CFSM .74 IN 10.07

02052000 MEHERRIN RIVER AT EMPORIA, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1968 to September 1971, October 1972 to current year.
WATER TEMPERATURES: April 1968 to September 1971, October 1972 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 690 micromhos Mar. 6, 1975; minimum, 30 micromhos Oct. 6, 1972.
WATER TEMPERATURES: Maximum, 35.0°C July 14, 21, 22, 26, 1969; minimum, 1.0°C Nov. 29, Dec. 3, 1970.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 198 micromhos June 13; minimum, 58 micromhos Mar. 8.
WATER TEMPERATURES: Maximum, 33.0°C July 21, 22, Aug. 1; minimum, 4.5°C Jan. 4.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	COLOR (PLAT-INUM-COBALT UNITS)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT												
15...	1630	149	75	40	21	3	4.8	2.3	5.5	2.4	22	7.8
NOV												
15...	1630	305	120	0	42	14	13	2.3	5.4	1.7	34	15
DEC												
15...	1630	970	115	0	44	17	13	2.8	5.7	1.6	33	14
JAN												
15...	1630	1840	107	0	37	14	11	2.4	6.0	1.5	28	12
FEB												
15...	1700	716	120	0	51	25	14	3.9	4.9	1.5	32	17
MAR												
15...	1700	1100	121	0	51	27	17	2.1	4.9	1.4	30	17
APR												
15...	1700	470	163	5	61	27	20	2.8	6.1	1.8	42	23
MAY												
15...	1630	240	170	10	67	25	22	2.9	6.3	1.8	51	24
JUN												
15...	1700	144	185	1	85	40	30	2.4	4.3	3.0	55	25
JUL												
15...	0625	275	130	20	47	21	15	2.3	5.5	3.2	32	15
AUG												
15...	0605	27	115	27	44	20	14	2.1	6.8	3.2	29	13
SEP												
15...	2000	86	64	180	16	0	3.6	1.6	6.5	2.1	21	5.1

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO, PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)
OCT												
15...	5.0	.1	16	58	56	.29	1.3	.00	.29	.01	.03	170
NOV												
15...	8.1	.0	17	88	80	.10	.40	.00	.10	.00	.00	10
DEC												
15...	7.8	.0	18	86	80	.09	.40	.00	.09	.00	.00	30
JAN												
15...	7.2	.0	17	78	71	.12	.50	.00	.12	.00	.00	30
FEB												
15...	9.1	.0	15	83	82	.07	.30	.00	.07	.00	.00	30
MAR												
15...	9.0	.0	15	88	82	.09	.40	.00	.09	.00	.00	20
APR												
15...	10	.0	17	114	102	.08	.40	.00	.08	.00	.00	10
MAY												
15...	11	.0	17	118	111	.10	.40	.00	.10	.00	.00	0
JUN												
15...	16	.1	8.6	140	118	.40	1.8	.00	.40	.01	.03	20
JUL												
15...	11	.1	11	93	81	.56	2.5	.00	.56	.01	.03	100
AUG												
15...	10	.1	11	88	77	.71	3.1	.00	.71	.03	.09	100
SEP												
15...	6.9	.1	11	60	49	.38	1.7	.01	.39	.00	.00	310

02052000 MEHERRIN RIVER AT EMPORIA, VA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	98	114	114	113	69	120	120	170	81	190	75	80
2	100	115	114	114	70	120	121	170	125	186	---	81
3	90	117	115	114	72	120	120	170	140	188	---	73
4	77	117	115	113	70	121	121	179	182	190	---	69
5	85	115	117	114	140	122	120	170	195	183	---	69
6	76	113	116	75	130	122	120	170	190	193	---	71
7	117	115	117	75	135	120	120	170	180	193	---	80
8	117	115	80	110	120	98	120	170	190	180	---	80
9	117	115	115	113	125	122	120	170	195	185	78	89
10	115	135	115	100	123	83	120	110	197	183	---	89
11	115	137	115	71	120	84	121	95	180	170	---	90
12	70	130	116	70	130	120	122	170	178	180	190	76
13	67	125	115	70	120	121	122	170	190	85	88	70
14	90	117	115	119	122	120	151	170	190	85	---	70
15	75	120	115	107	120	120	163	170	185	120	115	61
16	76	117	117	111	120	121	78	170	190	111	---	70
17	75	117	118	110	120	120	170	170	190	108	---	63
18	70	115	115	110	118	122	170	170	190	97	---	70
19	75	116	114	110	116	121	78	95	175	90	---	71
20	117	115	115	112	120	120	170	180	95	88	---	72
21	96	115	115	110	120	121	170	140	180	80	---	81
22	75	115	115	109	121	120	180	169	180	86	---	81
23	113	117	114	109	119	120	169	160	99	---	---	82
24	113	117	114	110	120	120	169	180	96	---	---	78
25	115	117	114	111	120	121	170	70	180	---	---	79
26	115	115	110	109	121	124	170	86	150	---	70	77
27	115	103	110	124	120	125	170	80	187	---	---	84
28	115	113	111	88	120	123	171	70	183	---	---	92
29	70	115	111	85	---	122	90	66	185	---	---	92
30	113	115	113	85	---	122	170	63	190	---	---	96
31	115	---	113	75	---	122	---	70	---	---	78	---
MEAN	96	117	113	101	115	116	139	137	161	138	96	76

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.0	14.0	10.5	6.0	8.0	7.0	14.5	23.5	28.0	29.0	33.0	30.0
2	20.5	13.5	10.0	5.5	7.0	7.0	14.5	23.5	27.5	30.5	---	29.0
3	20.0	14.0	10.0	5.0	7.0	8.0	15.0	24.0	27.0	31.0	---	29.0
4	19.5	14.0	9.5	4.5	7.0	9.0	15.0	23.5	27.5	31.0	---	30.0
5	20.0	13.5	9.5	5.0	6.0	8.0	14.5	23.5	27.0	31.0	---	32.0
6	20.0	14.0	9.0	6.0	5.0	9.0	14.5	24.0	28.0	31.0	---	29.0
7	19.5	14.0	9.0	7.5	6.0	9.0	15.0	23.5	29.0	30.0	---	28.0
8	19.0	14.0	8.5	6.0	7.0	10.0	17.0	24.0	29.0	31.0	---	28.0
9	18.5	14.0	10.0	10.0	8.0	11.0	16.0	25.0	30.0	32.0	31.0	30.0
10	19.0	12.5	9.5	10.0	7.0	11.0	15.5	25.0	30.0	32.0	---	27.0
11	19.0	13.0	10.0	8.5	7.0	11.0	15.5	24.5	29.0	31.5	---	28.0
12	17.5	12.5	9.0	7.5	8.0	10.0	16.0	25.0	29.0	30.0	32.0	26.0
13	20.0	13.0	8.5	8.0	7.0	11.0	16.5	24.0	29.0	30.0	32.0	28.0
14	18.5	13.0	9.0	9.0	8.0	10.0	16.0	23.5	28.0	31.0	---	27.0
15	19.0	13.0	8.5	9.5	8.0	10.0	16.0	25.0	29.0	31.5	31.0	25.0
16	20.0	12.5	8.5	10.0	8.0	11.0	16.5	27.5	28.0	31.0	---	27.0
17	19.0	12.0	7.0	10.0	7.0	10.0	17.5	28.5	28.5	31.0	---	27.0
18	18.0	12.0	7.5	10.5	6.0	12.0	18.0	30.5	29.0	31.0	---	26.0
19	18.5	12.0	9.0	10.0	8.0	11.0	18.5	32.0	29.5	31.5	---	26.5
20	18.0	11.5	7.5	10.0	7.0	10.0	19.0	30.5	30.0	32.0	---	26.5
21	18.0	11.5	8.0	9.5	7.0	11.0	19.5	31.0	30.0	33.0	---	24.5
22	18.5	11.0	7.0	9.5	7.0	12.0	20.0	31.0	30.0	33.0	---	23.5
23	17.0	11.0	6.5	10.0	8.0	14.0	20.0	31.0	30.0	---	---	24.0
24	15.5	10.5	7.0	10.5	7.0	13.0	21.0	29.0	29.5	---	---	24.0
25	18.0	11.0	7.0	10.5	7.0	14.0	21.5	27.0	29.0	---	---	25.0
26	15.0	12.0	7.0	10.0	6.0	13.5	23.0	27.0	29.0	---	32.0	24.5
27	14.5	11.5	6.5	7.0	6.0	13.5	23.5	27.0	29.5	---	---	24.5
28	15.0	10.5	6.0	6.0	7.0	14.0	24.0	28.0	30.0	---	---	25.0
29	14.5	11.0	6.0	7.0	---	14.0	24.0	28.0	29.0	---	---	24.0
30	16.0	10.5	6.0	6.0	---	14.5	24.0	27.0	29.0	---	---	23.0
31	15.0	---	6.0	8.0	---	15.0	---	28.0	---	---	32.0	---
MEAN	18.0	12.5	8.0	8.5	7.0	11.0	18.0	26.5	29.0	31.0	32.0	27.0

02052500 FONTAINE CREEK NEAR BRINK, VA

LOCATION.--Lat 36°36'55", long 77°42'00", Greensville County, Hydrologic Unit 03010204, on left bank 30 ft (9 m) upstream from bridge on State Highway 603, 0.3 mi (0.5 km) downstream from Quarrel Creek, 3.6 mi (5.8 km) west of Brink, and 10 mi (16 km) southwest of Emporia.

DRAINAGE AREA.--65.2 mi² (168.9 km²).

PERIOD OF RECORD.--October 1953 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 152.59 ft (46.509 m) above mean sea level.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--24 years, 67.1 ft³/s (1.900 m³/s), 13.98 in/yr (355 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,000 ft³/s (453 m³/s) Oct. 6, 1972, gage height, 24.14 ft (7.358 m), from floodmark, from rating curve extended above 2,900 ft³/s (82 m³/s); no flow at times in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharges, 1,060 ft³/s (30.0 m³/s) at 1500 hours Oct. 21, gage height, 11.42 ft (3.481 m), no other peak above base of 850 ft³/s (24 m³/s); no flow Aug. 14-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	46	55	54	50	272	58	18	12	3.9	.13	1.3
2	52	37	43	48	50	131	52	16	11	3.0	.21	.81
3	125	30	39	47	50	91	54	14	9.3	3.0	.32	.60
4	52	28	35	50	48	92	56	18	7.7	2.3	.21	.53
5	33	26	33	51	46	172	118	36	7.2	1.9	.21	.41
6	23	23	32	51	46	247	167	46	7.5	1.5	.36	.32
7	18	22	140	64	43	492	99	29	16	1.0	.26	.41
8	16	21	342	88	43	456	67	44	11	.90	.17	10
9	44	21	282	71	41	230	56	31	10	.68	.13	38
10	71	21	152	428	41	138	50	19	14	.60	.10	31
11	41	21	111	670	43	107	48	15	9.8	.47	.10	13
12	25	23	219	386	45	91	45	13	7.2	1.0	.08	5.7
13	20	25	242	138	96	318	41	12	6.1	.90	.04	3.4
14	16	24	157	120	103	517	39	10	5.3	.60	.00	1.9
15	14	34	99	318	71	275	35	9.1	5.1	.41	.00	1.5
16	12	57	147	230	58	133	32	7.9	5.3	.36	.00	1.1
17	11	43	138	138	52	99	30	7.2	5.1	.26	.00	3.6
18	18	36	95	95	46	84	28	6.8	4.9	.26	.10	22
19	19	31	75	75	48	78	27	6.1	4.7	.17	.10	16
20	234	29	72	69	65	127	27	5.9	4.5	.17	.21	6.6
21	974	27	103	65	59	152	25	5.3	3.9	.17	.41	3.7
22	414	25	84	60	49	234	23	5.1	3.2	.17	.41	2.2
23	91	22	68	58	46	227	23	5.1	3.0	.21	.32	1.5
24	49	22	62	56	66	133	24	5.3	4.3	.17	59	1.1
25	42	22	57	60	172	95	37	58	8.2	.13	99	1.3
26	67	20	112	68	124	78	29	99	15	.17	48	1.1
27	67	20	124	70	144	70	21	66	12	.17	14	.81
28	44	30	88	68	470	67	19	32	7.5	.17	5.9	.68
29	34	96	72	63	---	65	20	19	5.3	.13	3.4	.81
30	31	84	62	58	---	68	20	15	4.9	.13	2.0	.75
31	39	---	58	50	---	71	---	12	---	.13	1.5	---
TOTAL	2708	966	3398	3867	2215	5410	1370	685.8	231.0	25.13	236.67	172.13
MEAN	87.4	32.2	110	125	79.1	175	45.7	22.1	7.70	.81	7.63	5.74
MAX	974	96	342	670	470	517	167	99	16	3.9	99	38
MIN	11	20	32	47	41	65	19	5.1	3.0	.13	.00	.32
CFSM	1.34	.49	1.69	1.92	1.21	2.68	.70	.34	.12	.01	.12	.09
IN.	1.55	.55	1.94	2.21	1.26	3.09	.78	.39	.13	.01	.14	.10

CAL YR 1976 TOTAL 23017.86 MEAN 62.9 MAX 1290 MIN .17 CFSM .97 IN 13.13
WTR YR 1977 TOTAL 21284.73 MEAN 58.3 MAX 974 MIN .00 CFSM .89 IN 12.14

02053800 SOUTH FORK ROANOKE RIVER NEAR SHAWSVILLE, VA

LOCATION.--Lat 37°08'24", long 80°16'00", Montgomery County, Hydrologic Unit 03010101, on right bank 95 ft (29 m) downstream from bridge on State Highway 637, 0.3 mi (0.5 km) downstream from Georges Run, 1.3 mi (2.1 km) downstream from Elliott Creek, and 2.0 mi (3.2 km) southwest of Shawsville.

DRAINAGE AREA.--110 mi^2 (285 km^2).

PERIOD OF RECORD.--October 1960 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,361.87 ft (415.098 m) above mean sea level. Aug. 26, 1974, to July 24, 1975, nonrecording gage at site 95 ft (29 m) upstream at same datum.

REMARKS.--Records good except those for January and February, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--17 years, 103 ft^3/s (2.917 m^3/s), 12.72 in/yr (323 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,200 ft^3/s (402 m^3/s) June 21, 1972, gage height, 11.12 ft (3.389 m), from high-water mark in well, from rating curve extended above 3,700 ft^3/s (100 m^3/s) on basis of slope-area measurement of peak flow; minimum, 7.5 ft^3/s (0.21 m^3/s) July 27-29, 1966, gage height, 0.37 ft (0.113 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 30, 1959, reached a stage of 9.89 ft (3.014 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 800 ft^3/s (23 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 9	0700	3430	97.1	6.54	1.993	Mar. 13	0900	1120	31.7	3.45	1.052
Oct. 26	0100	1720	48.7	4.33	1.320	Apr. 5	0630	*3520	99.7	6.62	2.018
Dec. 7	0630	820	23.2	2.97	.905	Aug. 12	2000	850	24.1	3.00	.914

Minimum discharge, 16 ft^3/s (0.45 m^3/s) Aug. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	152	130	54	50	119	91	84	74	37	19	31
2	58	132	114	80	52	106	88	84	56	35	18	29
3	91	127	101	84	54	96	98	81	52	33	18	27
4	54	119	91	86	62	101	1280	112	47	32	18	28
5	44	109	88	80	58	111	2520	134	44	32	18	30
6	40	101	84	78	50	143	851	171	50	31	18	35
7	60	96	541	70	47	141	500	133	52	30	18	31
8	888	91	378	60	46	124	400	115	45	30	18	70
9	2130	86	240	76	50	114	310	102	56	29	17	96
10	539	88	192	79	60	106	250	99	47	29	20	58
11	263	82	192	60	72	101	220	91	42	36	20	38
12	172	98	259	50	70	98	180	86	42	38	106	31
13	132	88	266	72	86	718	160	81	41	37	52	30
14	111	82	214	84	72	440	145	77	42	30	35	30
15	96	84	192	100	70	266	130	74	52	29	32	29
16	86	84	178	76	58	196	120	70	42	27	28	33
17	114	79	155	50	55	158	112	70	42	26	28	38
18	96	79	135	74	58	143	106	68	44	25	33	33
19	82	77	127	78	62	127	152	68	40	24	29	32
20	238	75	138	76	60	182	136	93	37	23	27	38
21	328	72	141	78	54	163	124	72	36	23	26	33
22	206	70	116	66	60	210	115	68	36	23	26	32
23	155	66	114	64	62	206	112	65	70	23	26	31
24	143	64	114	66	205	186	118	63	58	22	32	31
25	286	66	110	65	158	160	107	70	74	23	30	30
26	1040	66	110	65	130	141	99	91	52	23	28	30
27	435	70	109	60	132	124	94	68	54	22	27	30
28	263	84	109	52	132	119	91	63	49	20	30	31
29	200	175	101	45	---	111	107	59	42	20	30	31
30	166	138	86	50	---	109	86	148	37	22	30	31
31	186	---	69	52	---	101	---	81	---	21	37	---
TOTAL	8772	2800	4994	2122	2125	5220	8902	2741	1455	855	893	1077
MEAN	283	93.3	161	68.5	75.9	168	297	88.4	48.5	27.6	28.8	35.9
MAX	2130	175	541	100	205	718	2520	171	74	38	106	96
MIN	40	64	69	45	46	96	86	59	36	20	17	27
CFSM	2.57	.85	1.46	.62	.69	1.53	2.70	.80	.44	.25	.26	.33
IN.	2.97	.95	1.69	.72	.72	1.77	3.01	.93	.49	.29	.30	.36

CAL YR 1976 TOTAL 38270 MEAN 105 MAX 2130 MIN 20 CFSM .96 IN 12.94
WTR YR 1977 TOTAL 41956 MEAN 115 MAX 2520 M 17 CFSM 1.05 IN 14.19

02054500 ROANOKE RIVER AT LAFAYETTE, VA

LOCATION.--Lat 37°14'11", long 80°12'34", Montgomery County, Hydrologic Unit 03010101, on right bank 120 ft (37 m) upstream from bridge on State Highway 603 at Lafayette, 0.4 mi (0.6 km) downstream from confluence of North and South Forks, and 1.1 mi (1.8 km) upstream from Cove Hollow.

DRAINAGE AREA.--257 mi² (666 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1943 to current year.

REVISED RECORDS.--WSP 1333: 1944-47(M), 1948-49.

GAGE.--Water-stage recorder. Datum of gage is 1,174.47 ft (357.978 m) above mean sea level. Prior to July 30, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good except those for January, and those for period of no gage-height record, Apr. 4-5, which are fair. Occasional diurnal fluctuation caused by meat-processing plant above station.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--34 years, 237 ft³/s (6.712 m³/s), 12.52 in/yr (318 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,500 ft³/s (694 m³/s) June 21, 1972, gage height, 15.60 ft (4.755 m), from floodmarks, from rating curve extended above 12,000 ft³/s (340 m³/s) on basis of slope-area measurement of peak flow; minimum daily, 10 ft³/s (0.28 m³/s) Jan. 14, 15, 18, 19, 1959.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 12.2 ft (3.72 m), from information by local residents, discharge, 19,000 ft³/s (538 m³/s), from rating curve extended above 12,000 ft³/s (340 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,500 ft³/s (99 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	0900	7230	205	8.23	2.509	Apr. 5	Unknown	*8850	251	a9.18	2.798
Oct. 26	0200	4540	129	6.44	1.963						

a From high-water mark in well.

Minimum discharge, 32 ft³/s (0.906 m³/s) Aug. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	142	300	240	110	98	283	215	166	150	84	39	61
2	109	260	226	166	100	253	207	158	125	76	39	58
3	135	240	194	190	100	236	215	158	108	71	39	74
4	118	230	178	194	105	228	1290	190	96	66	35	66
5	85	210	174	194	110	245	5920	224	93	63	34	58
6	78	190	158	182	96	253	2050	274	96	61	34	68
7	86	180	1250	182	88	270	1090	215	105	61	34	63
8	1520	170	910	130	92	249	768	194	90	56	34	105
9	4600	160	564	150	94	232	575	174	102	54	34	154
10	1190	170	440	174	100	219	465	166	99	54	39	132
11	559	155	415	111	170	207	395	158	87	84	37	90
12	370	190	492	90	178	203	346	150	87	90	66	71
13	292	170	520	120	178	930	314	139	84	84	160	63
14	240	160	440	140	190	769	296	136	87	66	84	61
15	203	157	400	150	182	498	274	128	102	58	81	58
16	186	154	380	140	154	395	257	121	90	52	61	63
17	211	146	337	90	136	327	245	118	87	50	61	76
18	194	143	300	100	136	309	236	114	96	48	81	66
19	174	139	274	120	146	283	266	111	84	48	63	58
20	508	136	283	128	150	375	249	132	76	45	54	63
21	740	132	323	130	132	375	228	111	74	41	52	61
22	440	128	253	120	128	476	215	105	74	43	50	56
23	332	125	249	110	143	520	207	102	121	45	52	54
24	300	118	245	130	334	445	219	102	125	43	66	54
25	670	118	236	125	400	380	203	114	162	48	76	54
26	2670	118	236	120	314	332	186	143	121	50	58	56
27	910	125	232	110	305	300	182	114	102	45	54	54
28	542	128	232	100	318	283	174	102	108	39	52	54
29	400	314	228	84	---	266	190	105	96	39	61	52
30	332	287	186	88	---	253	170	234	84	48	56	52
31	350	---	150	94	---	236	---	150	---	45	81	---
TOTAL	18685	5253	10747	4072	4677	10630	17647	4608	3011	1757	1767	2055
MEAN	603	175	347	131	167	343	588	149	100	56.7	57.0	68.5
MAX	4600	314	1250	194	400	930	5920	274	162	90	160	154
MIN	78	118	150	84	88	203	170	102	74	39	34	52
CFSM	2.35	.68	1.35	.51	.65	1.34	2.29	.58	.39	.22	.22	.27
IN.	2.70	.76	1.56	.59	.68	1.54	2.55	.67	.44	.25	.26	.30

CAL YR 1976 TOTAL 80106 MEAN 219 MAX 4600 MIN 41 CFSM .85 IN 11.60
WTR YR 1977 TOTAL 84909 MEAN 233 MAX 5920 MIN 34 CFSM .91 IN 12.29

02054500 ROANOKE RIVER AT LAFAYETTE, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951-52, 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1950 to September 1951.
WATER TEMPERATURES: October 1950 to September 1951.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	DIS-SOLVED OXYGEN (MG/L)	CHEM-ICAL OXYGEN DEMAND (HIGH LEVEL) (MG/L)	BIO-CHEM-ICAL OXYGEN DEMAND 5 DAY (MG/L)	FECAL COLI-FORM (COL. PER 100 ML)	FECAL STREP-TOCOCCI KF AGAR (COL. PER 100 ML)	BICAR-BONATE (HCO3) (MG/L)
OCT												
04...	1315	103	250	7.8	17.0	3	10.3	8	.4	340	420	--
NOV												
02...	1300	287	242	6.9	8.0	1	12.4	3	.6	67	71	--
DEC												
02...	1330	224	220	7.7	4.0	2	14.6	5	1.5	29	570	--
JAN												
10...	1430	154	270	8.2	1.0	1	15.1	2	.4	78	23	143
25...	1300	125	260	6.9	1.0	1	14.2	2	1.8	34	54	--
FEB												
07...	1315	98	310	7.9	1.0	1	15.0	3	1.0	21	330	--
22...	1300	114	310	8.2	5.0	1	14.4	1	1.2	<15	72	--
MAR												
07...	1300	266	225	8.2	9.0	3	13.3	1	.9	21	540	103
22...	1255	504	185	7.0	7.0	3	11.6	--	2.1	2800	3200	--
APR												
12...	1315	346	260	7.9	15.0	3	10.1	16	1.2	73	48	--
26...	1230	190	260	7.5	12.0	1	10.8	1	.2	220	310	--
MAY												
10...	1300	166	255	8.1	12.0	4	11.4	130	2.0	168	200	--
24...	1300	99	340	7.6	20.0	2	9.8	5	1.1	230	360	--
JUN												
07...	1315	105	282	7.4	17.5	2	10.2	4	2.1	8855	90	160
21...	1300	74	340	8.4	22.0	1	9.2	0	1.3	8640	102	--
JUL												
05...	1310	63	385	7.8	23.0	1	9.5	--	1.9	415	200	--
19...	1300	48	370	6.8	26.5	1	8.6	5	1.1	900	543	--
AUG												
02...	1245	39	400	8.4	21.5	2	9.5	5	2.0	380	607	--
16...	1230	61	405	8.1	22.5	1	8.4	6	1.5	1925	1840	--
30...	1300	52	390	8.4	23.0	--	9.3	--	2.1	867	1375	--
SEP												
13...	1245	66	385	8.4	17.5	4	9.9	--	1.8	592	311	200
27...	1200	56	405	8.4	18.0	2	10.0	--	1.9	310	893	220

< Actual value is known to be less than the value shown.
B Results based on colony count outside the acceptable range (non-ideal colony count).

02054500 ROANOKE RIVER AT LAFAYETTE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	CHLORO-PHYLL A (UG/L)	CHLORO-PHYLL B (UG/L)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)
CT												
04...	--	--	198	.25	.03	.17	.03	2.4	.000	.000	18	5.0
OV												
02...	--	--	152	.56	.04	.16	.02	6.0	2.20	.000	11	9.4
EC												
02...	--	--	137	.36	.05	.14	.02	2.5	.000	.000	3	2.0
AN												
10...	19	5.4	157	.54	.02	.15	.02	1.0	.000	.000	34	14
25...	--	--	141	.50	.07	.17	.02	3.0	3.28	.732	3	1.2
EB												
07...	--	--	278	.59	.04	.20	.02	1.8	.000	.000	32	9.8
22...	--	--	179	.38	.02	.16	.01	1.7	.776	.000	3	.92
AR												
07...	13	7.5	150	.40	.02	.23	.01	2.9	5.86	1.03	6	4.3
22...	--	--	128	.38	.02	.18	.01	--	5.48	.793	39	53
PR												
12...	--	--	165	.65	.01	.64	.03	2.4	.353	.000	24	22
26...	--	--	146	.17	.01	.40	.00	6.1	4.45	.033	23	12
AY												
10...	--	--	165	.19	.00	.11	.01	4.8	2.19	.488	4	1.8
24...	--	--	171	.18	.02	.18	.01	2.2	.000	.000	6	1.6
UN												
07...	17	3.9	158	.41	.04	.12	.04	5.4	1.56	.000	13	3.7
21...	--	--	186	.37	.05	.22	.04	4.1	1.55	.000	10	2.0
UL												
05...	--	--	211	.20	.02	.31	.02	5.9	2.90	.66[illegible]	9	1.5
19...	--	--	245	.26	.05	.33	.00	4.2	.707	.314	7	.94
UG												
02...	--	--	246	.26	.03	.08	.04	4.1	.000	.000	13	1.4
16...	--	--	238	.44	.03	.43	.06	4.7	.000	.000	25	4.1
30...	--	--	--	--	--	--	--	--	.316	.568	13	1.8
EP												
13...	30	6.2	228	.33	.00	.12	.05	5.5	--	--	15	2.7
27...	34	5.8	235	.26	.03	.29	.09	8.5	2.13	.821	8	1.2

02055000 ROANOKE RIVER AT ROANOKE, VA

LOCATION.--Lat 37°15'30", long 79°56'20", Roanoke City, Hydrologic Unit 03010101, on left bank 50 ft (15 m) downstream from Walnut Street Bridge, 3.2 mi (5.1 km) upstream from Tinker Creek, and at mile 360.6 (580.2 km).

DRAINAGE AREA.--395 mi² (1,023 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1899 to current year. Monthly discharge only for some periods, published in WSP 1303. Records for July 1896 to January 1899 published in WSP 11, 15, and 27, and 20th Annual Report, Part 4, are unreliable, due to doubtful gage-height record, and should not be used.

REVISED RECORDS.--WSP 972: 1928, 1930, 1933. WSP 1433: 1899-1904, 1914-17(M), 1918-24, 1925-27(M), 1929-34(M), 1935, 1936-39(M). WSP 2104: Drainage area. WDR VA-72: 1928(M), 1940(M). See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 906.84 ft (276.405 m) above mean sea level (levels by Corps of Engineers). Prior to June 7, 1937, nonrecording gage on downstream side of highway bridge 50 ft (15 m) upstream at same datum.

REMARKS.--Records good. Prior to 1949, diurnal fluctuation at low flow caused by powerplants above station. Appalachian Power Co. gage-height telemeter at station.

AVERAGE DISCHARGE.--78 years, 370 ft³/s (10.48 m³/s), 12.72 in/yr (323 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,300 ft³/s (716 m³/s) June 21, 1972, gage height, 19.61 ft (5.977 m), from floodmarks; practically no flow Dec. 23, 1909, Dec. 19, 1963, when flow was retarded by freezing, gage height, 0.0 ft (0.00 m); minimum daily discharge, 27 ft³/s (0.76 m³/s) Feb. 20, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s (71 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1200	8020	227	9.01	2.746	Apr. 5	0835	*11000	312	11.01	3.356
Oct. 26	0800	4110	116	6.01	1.832						

Minimum discharge, 28 ft³/s (0.79 m³/s) Aug. 4, gage height, 0.28 ft (0.085 m), result of regulation from unknown source; minimum daily, 40 ft³/s (1.13 m³/s) Aug. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	200	592	335	130	110	357	272	183	134	98	56	76
2	155	490	315	162	115	320	257	179	132	85	50	65
3	166	428	279	220	115	282	262	174	114	81	48	75
4	147	383	236	217	120	284	2320	223	105	77	46	81
5	113	343	224	220	130	283	8430	237	98	73	45	72
6	98	307	224	207	105	275	3280	280	95	71	45	68
7	108	283	1390	204	110	301	1710	237	101	68	43	122
8	1860	259	1310	150	105	276	1130	202	98	65	43	112
9	6030	240	822	169	105	252	835	179	105	64	43	150
10	1980	228	636	191	110	234	673	166	105	64	40	150
11	884	217	580	127	130	222	581	163	95	75	48	110
12	564	259	642	100	174	221	501	158	92	105	98	87
13	414	247	702	130	171	1130	432	145	89	93	160	77
14	335	220	614	160	198	1160	392	139	89	85	124	69
15	271	213	553	170	187	748	353	134	93	72	98	64
16	232	213	515	160	169	575	326	126	106	68	77	82
17	263	206	451	100	143	463	300	120	89	64	73	73
18	251	200	401	120	139	412	288	118	93	60	73	76
19	203	196	359	130	144	383	313	112	92	56	76	71
20	392	208	355	140	161	447	300	124	82	54	65	67
21	996	200	397	140	145	490	280	126	77	52	61	65
22	636	193	315	135	132	565	252	110	78	52	60	63
23	456	179	331	120	141	704	241	105	103	55	56	59
24	392	169	303	130	239	612	252	101	166	58	68	58
25	526	166	279	135	556	523	237	124	136	58	76	58
26	3110	166	311	135	412	452	215	132	136	60	72	56
27	1430	176	291	130	380	399	205	128	108	58	64	54
28	870	217	275	120	396	362	193	108	122	54	63	54
29	648	347	275	95	---	338	212	110	106	54	59	52
30	553	414	232	100	---	317	199	199	95	61	64	51
31	648	---	170	110	---	298	---	168	---	60	73	---
TOTAL	24931	7951	14122	4548	5142	13685	25241	4810	3134	2100	2067	2317
MEAN	804	265	456	147	184	441	841	155	104	67.7	66.7	77.2
MAX	6030	592	1390	220	556	1160	8430	280	166	105	160	150
MIN	98	166	170	95	105	221	193	101	77	52	40	51
CFSM	2.04	.67	1.15	.37	.47	1.12	2.13	.39	.26	.17	.17	.20
IN.	2.35	.75	1.33	.43	.48	1.29	2.38	.45	.30	.20	.19	.22

CAL YR 1976 TOTAL 115872 MEAN 317 MAX 6030 MIN 45 CFSM .80 IN 10.91
WTR YR 1977 TOTAL 110048 MEAN 302 MAX 8430 MIN 40 CFSM .77 IN 10.36

02055000 ROANOKE RIVER AT ROANOKE, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1930, 1951, 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	CHEMICAL OXYGEN DEMAND (HIGH LEVEL) (MG/L)	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	FECAL COLIFORM (COL. PER 100 ML)	FECAL STREPTOCOCCI KF AGAR (COL. PER 100 ML)	BICARBONATE (HCO3) (MG/L)
OCT												
05...	0800	119	350	7.4	16.5	7	9.0	5	1.0	2700	430	--
NOV												
03...	0830	442	278	7.6	8.0	3	12.1	8	.5	610	<140	--
DEC												
03...	0900	299	265	7.7	2.5	2	13.9	6	.5	31	680	--
JAN												
11...	0900	115	298	9.0	.5	2	15.2	3	1.3	310	28	158
26...	0900	135	300	7.7	1.0	1	14.6	2	.6	580	280	--
FEB												
08...	0830	105	200	7.6	.5	2	13.8	3	.6	620	550	--
23...	0815	147	300	7.9	4.5	1	12.5	4	1.2	380	79	--
MAR												
08...	0830	283	240	8.2	8.0	2	11.3	0	.9	300	28	127
23...	0900	720	200	6.8	6.0	5	11.2	--	1.8	360	340	--
APR												
13...	0830	441	280	8.1	14.5	5	9.7	5	1.4	300	74	--
27...	0900	212	305	7.8	13.0	1	11.0	6	.8	350	330	--
MAY												
11...	0830	162	310	8.1	13.5	3	9.6	140	1.6	320	51	--
25...	0900	115	330	9.0	20.0	3	7.2	7	1.6	>4300	2100	--
JUN												
08...	0930	102	302	7.9	16.5	3	8.8	1	1.7	510	330	190
22...	0800	77	350	8.5	22.5	1	7.2	5	1.0	733	457	--
JUL												
06...	0830	74	360	7.5	25.0	1	7.0	--	1.7	933	300	--
20...	0830	54	350	5.8	28.0	1	5.7	10	.1	440	5000	--
AUG												
03...	0930	46	375	8.3	23.0	1	6.9	5	1.3	490	1200	--
17...	0845	65	360	7.9	25.0	1	6.3	10	.8	833	530	--
31...	0900	58	375	8.3	24.0	--	7.2	--	1.2	420	471	--
SEP												
14...	0830	72	375	8.3	20.5	8	7.8	--	1.8	1033	421	190
28...	0830	54	395	8.2	19.0	7	7.7	--	1.7	310	340	200

< Actual value is known to be less than the value shown.
> Actual value is known to be greater than the value shown.

02055000 ROANOKE RIVER AT ROANOKE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	CHLORO-PHYLL A (UG/L)	CHLORO-PHYLL B (UG/L)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)
OCT												
05...	--	--	220	.47	.06	.22	.05	2.4	.000	.000	18	5.0
NOV												
03...	--	--	163	.59	.01	.11	.01	3.6	1.28	.000	9	11
DEC												
03...	--	--	153	.38	.01	.14	.01	2.0	3.43	.000	8	6.5
JAN												
11...	24	15	193	.53	.01	.20	.00	.8	.000	.000	56	17
26...	--	--	156	.40	.01	.17	.19	1.0	5.49	5.44	2	.78
FEB												
08...	--	--	289	.40	.02	.18	.01	2.0	.000	.000	6	1.2
23...	--	--	189	.27	.01	.18	.00	2.2	--	--	7	2.8
MAR												
08...	15	6.0	159	.21	.03	.26	.01	2.7	--	--	16	12
23...	--	--	128	.38	.01	.19	.02	--	6.70	.649	37	72
APR												
13...	--	--	183	.70	.00	.24	.02	2.3	5.09	2.05	33	43
27...	--	--	166	.22	.02	.23	.00	5.6	.779	.000	30	21
MAY												
11...	--	--	194	.19	.01	.12	.01	7.1	.792	.000	4	2.1
25...	--	--	203	.30	.06	.32	.02	4.0	--	--	10	3.5
JUN												
08...	22	7.8	186	.34	.03	.14	.01	6.3	1.16	.000	13	4.0
22...	--	--	193	.19	.04	.22	.04	5.6	3.15	.000	9	1.9
JUL												
06...	--	--	204	.01	.03	.34	.02	4.6	6.19	1.11	9	1.8
20...	--	--	217	.05	.06	.31	.00	4.1	1.41	.629	8	1.1
AUG												
03...	--	--	223	.05	.01	.29	.01	3.2	.000	.000	6	.75
17...	--	--	212	.54	.06	.52	.05	5.0	.000	.000	16	2.8
31...	--	--	--	--	--	--	--	--	1.02	.822	10	1.6
SEP												
14...	28	10	219	.31	.00	.23	.05	2.9	--	--	23	4.5
28...	32	8.7	222	.09	.03	.32	.03	9.0	3.81	.000	18	2.6

02055100 TINKER CREEK NEAR DALEVILLE, VA

LOCATION.--Lat 37°25'03", long 79°56'08", Botetourt County, Hydrologic Unit 03010101, on left bank 1,100 ft (335 m) downstream from Norfolk and Western Railway bridge, 0.2 mi (0.3 km) downstream from unnamed tributary, 0.5 mi (0.8 km) south of Glebe Mills, and 1.3 mi (2.1 km) northwest of Daleville.

DRAINAGE AREA.--11.7 mi² (30.3 km²).

PERIOD OF RECORD.--April 1956 to current year.

REVISED RECORDS.--WSP 1904: 1958-60(P). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,217.47 ft (371.085 m) above mean sea level (Norfolk and Western Railway bench mark).

REMARKS.--Records fair except those for period of no gage-height record, Apr. 9 to May 10, which are poor. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--21 years, 11.2 ft³/s (0.317 m³/s), 13.00 in/yr (330 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,000 ft³/s (113 m³/s) June 21, 1972, gage height, 9.82 ft (2.993 m), from rating curve extended above 100 ft³/s (2.8 m³/s) on basis of contracted-opening measurement at gage height 9.82 ft (2.993 m) and slope-area measurements at gage heights 8.52 ft (2.597 m) and 9.82 ft (2.993 m); minimum, 0.20 ft³/s (0.006 m³/s) Jan. 24, 1961, result of freezeup; minimum daily, 0.90 ft³/s (0.025 m³/s) July 26, 1966; minimum gage height, 0.99 ft (0.302 m) June 12, 24, 1970.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1940 reached a stage of 9.0 ft (2.74 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 250 ft³/s (7.1 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	0545	434	12.3	4.67	1.423	Apr. 5	Unknown	264	7.48	3.91	1.192
Oct. 25	2245	*458	13.0	4.76	1.451						

Minimum discharge, 1.4 ft³/s (0.040 m³/s) July 21; minimum gage height, 1.09 ft (0.332 m) July 21, Aug. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	14	7.3	4.0	3.0	4.6	7.5	5.0	4.4	3.1	1.8	2.2
2	3.8	12	7.3	5.0	3.1	4.3	7.2	4.8	3.8	2.8	1.8	3.7
3	3.9	11	6.9	6.0	3.1	4.2	7.4	4.7	3.6	2.7	1.8	5.9
4	3.1	10	6.8	6.2	3.2	5.3	80	6.0	3.4	2.7	1.8	2.8
5	2.8	9.2	6.6	6.5	3.5	5.1	230	7.0	3.2	2.7	1.7	2.4
6	2.8	8.6	7.0	6.4	2.9	4.8	50	7.8	3.4	2.6	1.7	2.1
7	4.4	8.2	47	6.0	2.7	4.5	25	6.5	3.4	2.4	1.7	2.7
8	34	7.7	23	4.0	2.8	4.2	20	5.5	3.5	2.3	1.8	4.2
9	121	7.6	16	4.5	2.8	4.1	17	5.2	3.8	2.2	2.0	3.1
10	22	7.4	12	5.0	3.0	4.0	15	5.0	3.7	2.3	2.7	2.6
11	15	7.1	12	3.5	3.5	3.9	14	5.0	3.7	2.6	2.6	2.2
12	12	9.1	13	2.7	4.5	4.0	13	4.9	3.7	3.3	3.3	2.0
13	11	8.3	12	3.5	5.2	35	12	4.7	3.5	2.7	7.3	2.0
14	7.5	7.6	11	4.3	4.9	16	11	4.6	4.0	2.4	4.4	1.9
15	6.6	7.6	11	4.6	4.8	11	11	4.6	3.8	2.3	4.0	1.8
16	6.1	7.2	9.8	4.3	4.4	9.5	10	4.5	3.6	2.1	3.9	2.4
17	7.5	6.9	9.1	2.7	4.4	9.0	8.8	4.4	3.7	2.1	4.4	2.2
18	6.5	7.1	9.3	3.2	4.4	8.4	8.0	4.6	3.4	2.0	3.4	2.0
19	6.1	7.5	9.3	3.5	4.4	8.0	8.4	4.9	3.1	2.0	2.4	1.9
20	19	7.5	10	4.0	4.3	10	8.0	4.7	3.1	2.0	2.3	2.1
21	15	7.3	8.5	4.0	4.2	9.0	7.6	4.3	3.1	1.8	2.4	2.0
22	11	7.3	7.6	3.6	4.2	15	7.0	4.2	3.3	2.0	2.7	2.0
23	8.9	7.1	7.9	3.2	4.2	20	6.6	4.1	3.8	1.9	2.4	1.9
24	9.0	7.1	7.8	3.5	8.7	16	6.8	4.0	4.2	2.0	2.8	1.9
25	51	7.2	7.6	3.8	5.8	14	6.4	5.8	5.3	2.3	2.6	1.9
26	49	7.1	8.6	3.8	5.1	12	6.0	4.6	4.2	2.1	2.3	2.0
27	23	7.4	7.9	3.5	5.2	11	5.6	4.1	3.6	1.9	2.2	2.0
28	16	8.0	8.0	3.2	4.9	10	5.2	3.8	3.6	1.9	2.2	1.9
29	12	11	7.7	2.5	---	9.0	5.8	4.0	3.5	1.9	2.1	1.8
30	13	7.9	6.5	2.7	---	8.5	5.4	12	3.2	2.0	2.1	1.8
31	20	---	5.0	3.0	---	8.0	---	5.3	---	1.8	2.1	---
TOTAL	526.4	249.0	329.5	126.7	117.2	292.4	625.7	160.6	109.6	70.9	81.7	71.4
MEAN	17.0	8.30	10.6	4.09	4.19	9.43	20.9	5.18	3.65	2.29	2.64	2.38
MAX	121	14	47	6.5	8.7	35	230	12	5.3	3.3	7.3	5.9
MIN	2.8	6.9	5.0	2.5	2.7	3.9	5.2	3.8	3.1	1.8	1.7	1.8
CFSM	1.45	.71	.91	.35	.36	.81	1.79	.44	.31	.20	.23	.20
IN.	1.67	.79	1.05	.40	.37	.93	1.99	.51	.35	.23	.26	.23

CAL YR 1976 TOTAL 3157.7 MEAN 8.63 MAX 121 MIN 1.5 CFSM .74 IN 10.04
WTR YR 1977 TOTAL 2761.1 MEAN 7.56 MAX 230 MIN 1.7 CFSM .65 IN 8.78

02056000 ROANOKE RIVER AT NIAGARA, VA

LOCATION.--Lat 37°15'18", long 79°52'18", Roanoke County, Hydrologic Unit 03010101, on right bank 200 ft (60 m) downstream from powerplant of Appalachian Power Co. at Niagara, 2 mi (3 km) downstream from Tinker Creek, 2.1 mi (3.4 km) southeast of Vinton, and at mile 355.3 (571.7 km).

DRAINAGE AREA.--512 mi² (1,326 km²).

PERIOD OF RECORD.--July 1926 to current year.

REVISED RECORDS.--WSP 972: 1927(M), 1929(M), 1934(M), 1937(M). WSP 1303: 1928, 1930, 1933-38, 1940. WSP 2104: Drainage area. WDR VA-72: 1928(M), 1930(M), 1933(M), 1935-36(M), 1938(M), 1940, 1944-45(M), 1948-49(M), 1951(M), 1955(M), 1960(M), 1967(M), 1969(M).

GAGE.--Water-stage recorder. Datum of gage is 820.15 ft (249.982 m) above mean sea level (levels by Corps of Engineers).

REMARKS.--Records good. Flow regulated by dam and powerplant 200 ft (60 m) above station. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--51 years, 505 ft³/s (14.30 m³/s), 13.39 in/yr (340 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,800 ft³/s (816 m³/s) June 21, 1972, gage height, 18.98 ft (5.785 m), from rating curve extended above 12,000 ft³/s (340 m³/s) on basis of slope-area measurement of peak flow; minimum, 1.0 ft³/s (0.028 m³/s) Oct. 16, 20, 1956; minimum daily, 8 ft³/s (0.23 m³/s) Oct. 9, 1954; minimum gage height, 0.17 ft (0.052 m) Aug. 25, 1971.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,500 ft³/s (99 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	0915	13800	391	13.72	4.182	Apr. 5	1100	*14800	419	14.12	4.304
Oct. 26	0730	5980	169	9.70	2.957						

Minimum daily discharge, 97 ft³/s (2.75 m³/s) July 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	340	812	472	200	160	482	397	317	300	250	152	193
2	318	709	450	250	170	458	393	312	275	185	136	173
3	296	624	407	346	170	418	352	311	273	184	164	180
4	272	562	365	341	180	427	3050	397	226	184	152	196
5	208	503	374	322	190	435	11300	394	236	183	140	186
6	202	464	386	362	160	430	4070	400	228	129	131	193
7	237	368	1890	313	150	372	2110	400	228	209	158	303
8	2700	468	1820	220	150	406	1550	362	246	97	138	313
9	9520	374	1200	240	150	405	1190	334	239	114	137	345
10	2410	422	905	260	160	360	994	314	248	131	166	296
11	1170	413	835	190	200	332	863	299	224	177	140	239
12	782	450	935	150	260	338	748	294	235	196	190	193
13	619	401	982	200	316	1530	672	304	196	256	330	164
14	505	368	868	230	287	1650	619	263	228	186	256	144
15	437	368	797	250	299	1090	572	273	225	175	266	138
16	404	344	713	230	306	841	533	265	304	173	191	186
17	423	329	699	150	250	672	496	249	273	168	240	163
18	375	341	580	170	263	596	475	266	225	170	188	164
19	347	305	520	190	269	550	495	278	217	151	188	147
20	680	347	505	210	275	643	476	283	201	148	181	160
21	1310	302	591	210	233	668	449	267	197	168	174	133
22	874	290	476	200	246	765	431	236	199	167	178	135
23	651	308	484	180	271	937	412	255	266	163	173	130
24	580	262	440	190	292	816	408	249	345	164	187	137
25	811	302	409	200	704	705	409	290	309	119	186	135
26	4160	285	396	200	546	612	384	283	290	182	183	111
27	1890	293	495	190	503	542	373	270	233	183	177	121
28	1210	359	423	180	518	502	362	253	274	149	175	142
29	895	425	412	140	---	478	363	241	255	155	171	120
30	758	556	367	150	---	447	358	340	195	165	124	119
31	910	---	367	160	---	426	---	334	---	166	189	---
TOTAL	36294	12354	20563	6824	7686	19333	35304	9341	7390	5247	5561	5345
MEAN	1171	412	663	220	275	624	1177	301	246	169	179	178
MAX	9520	812	1890	362	704	1650	11300	408	345	256	330	345
MIN	202	262	365	140	150	332	352	236	195	97	124	111
CFSM	2.29	.81	1.30	.43	.54	1.22	2.30	.59	.48	.33	.35	.35
IN.	2.64	.90	1.49	.50	.56	1.40	2.57	.68	.54	.38	.40	.39

CAL YR 1976 TOTAL 179860 MEAN 491 MAX 9520 MIN 182 CFSM .96 IN 13.07
WTR YR 1977 TOTAL 171242 MEAN 469 MAX 11300 MIN 97 CFSM .92 IN 12.44

02056650 BACK CREEK NEAR DUNDEE, VA

LOCATION.--Lat 37°13'40", long 79°52'06", Roanoke County, Hydrologic Unit 03010101, on right bank at upstream side of bridge on State Highway 660, 0.9 mi (1.4 km) upstream from Horseshoe Branch, 1.1 mi (1.8 km) southeast of Dundee, 2.8 mi (4.5 km) west of Hardy Post Office, and at mile 2.4 (3.9 km).

DRAINAGE AREA.--56.8 mi² (147.1 km²).

PERIOD OF RECORD.--July 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 822.67 ft (250.750 m) above mean sea level. Prior to Apr. 4, 1975, nonrecording gage at same site and datum.

REMARKS.--Records good except those for January and February, which are fair. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,500 ft³/s (212 m³/s) May 29, 1976, gage height, 15.00 ft (4.572 m), from floodmarks, from rating curve extended above 1,500 ft³/s (42 m³/s); minimum, 4.5 ft³/s (0.13 m³/s) part or all of each day July 22, 23, 28, 29, Aug. 4-9, 1977, gage height, 0.60 ft (0.183 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods of May 30, 1971, and June 21, 1972, reached a stage of 17.5 ft (5.33 m) and 20.0 ft (6.10 m), respectively, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 600 ft³/s (17 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 8	0515	906	25.7	5.36	1.634	Mar. 13	0630	1330	37.7	6.45	1.966
Oct. 9	0700	*2890	81.8	9.31	2.838	Apr. 4	1215	1200	34.0	6.12	1.865
Oct. 26	0225	1070	30.3	5.80	1.768	Apr. 5	0730	1480	41.9	6.82	2.079
Dec. 7	0745	660	18.7	4.60	1.402						

Minimum discharge, 4.5 ft³/s (0.13 m³/s) part or all of each day July 22, 23, 28, 29, Aug. 4-9, gage height, 0.60 ft (0.183 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	71	35	22	19	44	50	42	36	17	5.7	10
2	25	64	30	30	20	41	49	39	29	14	5.1	8.0
3	41	63	28	37	20	37	50	36	25	12	4.8	6.2
4	25	54	27	42	21	56	617	45	22	10	4.7	5.7
5	20	49	28	42	22	70	1040	47	20	10	4.7	5.7
6	17	46	35	37	19	65	388	48	19	10	4.5	13
7	19	45	339	36	17	62	219	36	22	9.2	4.5	32
8	536	39	176	26	18	57	158	33	19	8.2	4.5	30
9	1530	37	115	29	18	53	128	30	20	8.0	4.5	49
10	265	37	91	34	19	49	110	29	25	7.4	6.4	36
11	114	35	88	21	25	45	97	29	19	7.6	4.9	18
12	80	44	105	18	31	45	88	29	18	14	4.8	11
13	63	44	96	23	31	648	81	28	18	14	10	9.0
14	52	36	83	27	35	257	75	26	17	9.8	12	8.4
15	42	35	77	30	32	151	72	25	19	8.2	9.6	7.8
16	38	35	74	25	24	111	68	25	19	7.2	7.6	9.2
17	47	33	66	18	21	90	64	23	18	6.6	6.2	18
18	44	32	60	21	20	83	62	23	25	6.2	7.4	11
19	35	32	56	23	25	74	62	22	17	5.7	7.6	9.2
20	157	31	55	25	34	102	58	21	15	5.4	6.4	9.8
21	120	30	60	25	27	91	55	20	14	4.9	6.0	9.0
22	77	30	43	23	31	107	53	19	12	4.7	5.5	7.8
23	62	29	56	21	31	102	52	19	22	4.8	5.5	7.6
24	60	28	47	23	54	89	54	19	29	5.3	5.5	7.4
25	86	28	51	24	65	81	51	31	29	4.9	7.2	7.4
26	665	28	59	24	50	73	49	55	23	5.4	7.0	7.2
27	160	29	48	23	48	68	47	29	17	5.7	6.4	7.0
28	111	31	46	21	51	64	43	24	16	4.9	6.2	6.6
29	86	64	45	17	---	61	45	22	16	4.7	7.0	6.4
30	74	51	35	18	---	57	44	162	14	6.4	19	6.4
31	85	---	30	19	---	54	---	47	---	7.8	26	---
TOTAL	4769	1210	2184	804	828	2987	4029	1083	614	250.0	227.2	379.6
MEAN	154	40.3	70.5	25.9	29.6	96.4	134	34.9	20.5	8.06	7.33	12.7
MAX	1530	71	339	42	65	648	1040	162	36	17	26	49
MIN	17	28	27	17	17	37	43	19	12	4.7	4.5	5.7
CFSM	2.71	.71	1.24	.46	.52	1.70	2.36	.61	.36	.14	.13	.22
IN.	3.12	.79	1.43	.53	.54	1.96	2.64	.71	.40	.16	.15	.25

CAL YR 1976 TOTAL 22421.2 MEAN 61.3 MAX 1530 MIN 7.4 CFSM 1.08 IN 14.68
WTR YR 1977 TOTAL 19364.8 MEAN 53.1 MAX 1530 MIN 4.5 CFSM .94 IN 12.68

02056900 BLACKWATER RIVER NEAR ROCKY MOUNT, VA

LOCATION.--Lat 37°02'42", long 79°45'40", Franklin County, Hydrologic Unit 03010101, on right bank 45 ft (14 m) downstream from bridge on State Highway 122, 3.0 mi (4.8 km) northeast of Rocky Mount, and 4.1 mi (6.6 km) upstream from Maggodee Creek.

DRAINAGE AREA.--115 mi² (298 km²).

PERIOD OF RECORD.--October 1976 to September 1977.

GAGE.--Water-stage recorder. Datum of gage is 876.45 ft (267.142 m) above mean sea level.

REMARKS.--Records good except those for period of no gage-height record, Oct. 1 to Nov. 9, and those for January, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s (42 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	---	*Unknown		Unknown		Mar. 13	Unknown	2300	65.1	7.37	2.246
Oct. 26	---	Unknown		Unknown		Apr. 5	0830	2570	72.8	7.83	2.387

Minimum discharge, 9.2 ft³/s (0.26 m³/s) Aug. 11, gage height, 1.23 ft (0.375 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	98	270	96	87	76	106	148	100	80	39	17	22
2	66	210	98	82	78	106	144	99	69	37	15	22
3	80	180	92	90	86	102	143	98	61	36	15	18
4	60	160	80	94	96	106	617	102	57	34	16	14
5	56	160	87	94	100	180	1050	105	55	33	16	16
6	45	120	87	90	94	160	620	125	56	31	16	16
7	43	115	684	87	86	160	386	99	60	30	16	17
8	300	108	314	80	80	146	295	93	52	27	17	46
9	5000	98	216	75	86	130	265	86	55	25	10	86
10	2000	99	180	70	90	117	223	83	58	23	9.6	48
11	600	96	176	69	100	108	202	83	50	25	10	32
12	350	111	190	72	110	116	190	80	49	31	10	25
13	260	106	180	80	112	942	180	79	49	32	11	23
14	210	98	162	87	123	540	170	77	51	32	21	22
15	180	96	158	84	90	310	160	76	56	25	22	22
16	165	96	162	82	86	236	150	72	52	23	21	25
17	230	92	143	80	77	196	144	72	49	22	17	65
18	200	90	133	89	76	176	138	68	51	20	19	35
19	170	86	128	88	92	166	136	67	67	20	19	28
20	350	86	128	90	98	262	120	66	62	19	18	25
21	660	83	136	86	80	298	123	67	39	19	17	25
22	330	82	112	82	77	286	120	63	36	17	16	23
23	250	80	107	81	80	198	116	62	55	17	15	22
24	220	79	108	81	90	176	136	62	73	20	17	22
25	800	79	112	80	147	168	119	70	86	18	21	22
26	2100	79	122	90	119	166	112	96	70	20	20	22
27	640	82	112	86	112	166	110	78	52	20	19	21
28	450	87	110	78	112	164	105	67	48	17	18	20
29	350	152	110	76	---	159	108	62	47	15	16	19
30	270	117	98	78	---	153	102	165	43	16	16	19
31	350	---	86	60	---	150	---	87	---	19	15	---
TOTAL	16875	3375	4721	2558	2659	6323	7218	2607	1646	762	496.6	782
MEAN	544	113	152	82.5	95.0	204	241	84.1	54.9	24.6	16.0	26.1
MAX	5000	270	684	94	147	942	1050	165	86	39	23	86
MIN	43	79	86	69	76	102	102	62	36	15	9.6	16
CFSM	4.73	.98	1.32	.72	.83	1.77	2.10	.73	.48	.21	.14	.23
IN.	5.46	1.09	1.53	.83	.86	2.05	2.33	.84	.53	.25	.16	.25

WTR YR 1977 TOTAL 50022.6 MEAN 137 MAX 5000 MIN 9.6 CFSM 1.19 IN 16.18

02057400 SMITH MOUNTAIN LAKE NEAR PENHOOK, VA

LOCATION.--Lat 37°02'28", long 79°32'09", Pittsylvania County, Hydrologic Unit 03010101, at dam on Roanoke (Staunton) River 6.5 mi (10.5 km) northeast of Penhook and at mile 314.0 (505.2 km).

DRAINAGE AREA.--1,024 mi² (2,652 km²).

PERIOD OF RECORD.--September 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level. Prior to July 19, 1965, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by concrete dam. Two ungated spillways, one near each end of dam, with crests at elevation 795 ft (242.3 m) are each 105 ft (32.0 m) long. Initial filling began in September 1963 during construction; water in reservoir first reached minimum power pool, elevation, 787 ft (239.9 m), in May 1965. Total capacity at maximum pool elevation, 811 ft (247.2 m), is 1,517,000 acre-ft (1.87 km³) of which 375,000 acre-ft (462 hm³) is above the spillway crest; 157,800 acre-ft (195 hm³) is normally used for power between elevation 787 ft (239.9 m), minimum power pool, and the spillway crest. Capacity at invert of lowest penstock, elevation, 601 ft (183.2 m), is 100 acre-ft (123,000 m³). Figures given herein represent total contents. Reservoir is part of the Smith Mountain Combination Project (pumped storage) which is used for hydroelectric power, flood control, low-water regulation for pollution abatement and water supply, water releases for downstream fish spawning, and recreation.

COOPERATION.--Records furnished by Appalachian Power Company.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,200,600 acre-ft (1.48 km³) June 22, 1972, elevation, 797.6 ft (243.11 m); minimum (after first filling to minimum power pool), 995,400 acre-ft (1.23 km³) Jan. 23, 1970, elevation, 787.6 ft (240.06 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,146,500 acre-ft (1.41 km³) Apr. 5, elevation, 795.2 ft (242.38 m); minimum, 1,028,800 acre-ft (1.27 km³) Sept. 30, elevation, 789.4 ft (240.61 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	790.0	1040000	
Oct. 31	794.7	1135900	+95900
Nov. 30	793.8	1117500	-18400
Dec. 31	792.9	1099200	-18300
CAL YR 1976			-8100
Jan. 31	792.7	1095100	-4100
Feb. 28	793.3	1107300	+12200
Mar. 31	793.2	1105300	-2000
Apr. 30	794.1	1123600	+1830
May 31	793.5	1111400	-12200
June 30	792.9	1099200	-12200
July 31	792.5	1091000	-8200
Aug. 31	790.4	1048200	-42800
Sept. 30	789.4	1028800	-19400
WTR YR 1977			-11200

02058400 PIGG RIVER NEAR SANDY LEVEL, VA

LOCATION.--Lat 36°56'45", long 79°31'30", Pittsylvania County, Hydrologic Unit 03010101, on left bank 300 ft (90 m) downstream from Harpen Creek, 0.5 mi (0.8 km) upstream from bridge on State Highway 40, and 1.1 mi (1.8 km) south of Sandy Level.

DRAINAGE AREA.--350 mi² (906 km²).

PERIOD OF RECORD.--May 1963 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 617.00 ft (188.062 m) above mean sea level (Corps of Engineers bench mark). Prior to Nov. 18, 1963, nonrecording gage at same site and datum.

REMARKS.--Records good. Appalachian Power Company gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--14 years, 356 ft³/s (10.08 m³/s), 13.81 in/yr (351 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,700 ft³/s (643 m³/s) June 22, 1972, gage height, 24.07 ft (7.337 m), from rating curve extended above 12,000 ft³/s (340 m³/s) on basis of slope-area measurement of peak flow; minimum, 40 ft³/s (1.13 m³/s) Aug. 21, 22, 24-26, 1963, gage height, 2.00 ft (0.610 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft³/s (110 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 10	0030	*7120	202	12.74	3.883	Apr. 5	1500	4470	127	8.79	2.679
Dec. 7	1500	4250	120	8.41	2.563						

Minimum discharge, 49 ft³/s (1.39 m³/s) Aug. 12, gage height, 2.12 ft (0.646 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	520	416	427	206	232	233	263	220	246	129	61	76
2	255	366	365	219	231	221	247	226	255	126	62	76
3	303	308	310	275	232	219	258	226	201	121	57	65
4	241	260	279	250	233	225	495	231	179	112	56	59
5	187	272	271	246	288	291	3360	255	170	110	61	61
6	166	256	267	250	266	365	1520	263	177	105	66	62
7	136	246	2930	258	250	668	676	290	196	98	61	179
8	370	240	1540	230	266	366	687	395	175	93	57	206
9	4650	227	916	230	246	296	485	270	170	86	53	273
10	2660	226	532	230	263	271	360	213	175	80	57	229
11	520	220	403	225	262	258	342	209	163	136	91	148
12	357	239	636	220	266	253	319	250	159	193	92	111
13	292	251	606	240	241	732	301	206	158	216	81	98
14	255	235	650	265	288	471	263	197	176	141	90	92
15	226	198	456	260	262	445	275	188	207	112	88	96
16	216	226	432	249	244	356	267	186	182	98	77	110
17	387	216	382	210	214	316	250	186	167	92	71	140
18	450	216	342	210	200	260	255	186	156	90	76	150
19	305	209	319	230	250	296	255	182	153	90	78	121
20	1830	206	321	250	246	708	260	180	143	74	75	107
21	1300	200	363	230	221	470	300	176	136	73	68	98
22	910	205	305	220	206	1150	250	175	126	71	71	96
23	356	202	296	220	200	650	251	178	156	70	123	97
24	319	195	292	220	237	485	300	180	248	69	103	97
25	600	195	277	230	314	337	315	243	240	72	86	92
26	2770	195	326	245	269	310	286	269	222	71	80	97
27	832	198	306	229	249	293	255	263	165	70	78	108
28	477	386	283	257	256	275	243	295	146	62	76	101
29	376	1920	270	210	---	275	263	191	170	61	70	92
30	237	730	255	219	---	276	235	236	193	65	67	88
31	449	---	257	230	---	286	---	286	---	63	62	---
TOTAL	22557	9563	15396	7299	7041	12099	13577	6887	5342	3050	2228	3427
MEAN	728	319	497	235	251	390	453	222	178	98.4	71.9	114
MAX	4650	1920	2930	280	314	1150	3360	395	266	216	123	273
MIN	136	195	255	210	200	215	235	175	126	61	51	59
CFSM	2.08	.91	1.42	.67	.72	1.11	1.29	.63	.51	.28	.21	.33
IN.	2.40	1.02	1.64	.78	.75	1.28	1.44	.73	.57	.32	.24	.36

CAL YR 1976 TOTAL 126466 MEAN 346 MAX 5590 MIN 60 CFSM .98 IN 13.40
WTR YR 1977 TOTAL 108476 MEAN 297 MAX 4650 MIN 51 CFSM .85 IN 11.53

02059400 LEESVILLE LAKE NEAR LEESVILLE, VA

LOCATION.--Lat 37°05'35", long 79°24'09", Campbell County, Hydrologic Unit 03010101, at Leesville Dam on Roanoke (Staunton) River, 2.0 mi (3.2 km) south of Leesville, 3.5 mi (5.6 km) upstream from Goose Creek, and at mile 296 (476 km).

DRAINAGE AREA.--1,505 mi^2 (3,898 km^2).

PERIOD OF RECORD.--September 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level. Prior to June 6, 1963, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by concrete dam. Spillway, with crest at elevation 578.0 ft (176.17 m), is equipped with 4 radial gates 35 ft (11 m) high by 50 ft (15 m) wide. Storage began on Sept. 29, 1962, during construction, and water in reservoir first reached minimum power pool, elevation, 600.0 ft (182.88 m), on Mar. 5, 1963. Total capacity at maximum pool elevation, 613 ft (186.8 m), is 94,960 acre-ft (117 hm^3) of which 75,960 acre-ft (93.7 hm^3) is above the spillway crest; 38,200 acre-ft (47.1 hm^3) is normally used for power between elevations 600.0 ft (182.88 m), minimum power pool, and the spillway crest. Capacity at invert of lowest penstock, elevation, 579.75 ft (176.708 m), is 21,010 acre-ft (25.9 hm^3). Figures given herein represent total contents. Reservoir is part of the Smith Mountain Combination Project (see station 02057400).

COOPERATION.--Records furnished by Appalachian Power Company.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 98,180 acre-ft (121 hm^3) Feb. 1, 1965, elevation, 614.0 ft (187.15 m); minimum (after first filling to minimum power pool), 39,880 acre-ft (49.2 hm^3) Mar. 19, 1963, elevation, 592.0 ft (180.44 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 94,640 acre-ft (117 hm^3) Oct. 14, Dec. 23, May 26, July 8, 14, elevation, 612.9 ft (186.81 m); minimum, 56,970 acre-ft (70.2 hm^3) May 23, elevation, 599.9 ft (182.85 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	611.5	90130	
Oct. 31	601.3	60680	-29450
Nov. 30	610.1	85620	+24940
Dec. 31	611.4	89810	+4190
CAL YR 1976			+12150
Jan. 31	605.7	72660	-17150
Feb. 28	603.5	66580	-6080
Mar. 31	611.5	90130	+23550
Apr. 30	604.9	70330	-19800
May 31	607.8	78830	+8500
June 30	608.8	81770	+2940
July 31	600.6	58810	-22960
Aug. 31	605.4	71780	+12970
Sept. 30	606.6	75300	+3520
WTR YR 1977			-14830

02059500 GOOSE CREEK NEAR HUDDLESTON, VA

LOCATION.--Lat 37°10'23", long 79°31'14", Bedford County, Hydrologic Unit 03010101, on left bank 0.3 mi (0.5 km) upstream from Haden Bridge on State Highway 732, 0.4 mi (0.6 km) upstream from Rockcastle Creek, and 3.5 mi (5.6 km) northwest of Huddleston.

DRAINAGE AREA.--188 mi² (487 km²).

PERIOD OF RECORD.--March 1925 to August 1928 (gage heights only), September 1930 to current year.

REVISED RECORDS.--WSP 892: 1933, 1935(M), 1939. WSP 972: 1931-32(M), 1934(M), 1935-38, 1940, 1941(M). WSP 1082: 1940(P). WSP 1142: 1938-40(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 592.91 ft (180.719 m) above mean sea level. Mar. 15, 1925, to Aug. 4, 1928, nonrecording gage at site 1,300 ft (396 m) downstream at different datum.

REMARKS.--Records good except those for January and February, which are poor. Prior to October 1954, diurnal fluctuation at low flow caused by mill above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--47 years, 174 ft³/s (4.928 m³/s), 12.57 in/yr (319 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,300 ft³/s (575 m³/s) Oct. 19, 1937, gage height, 25.75 ft (7.849 m), from floodmarks, from rating curve extended above 11,000 ft³/s (310 m³/s) on basis of slope-area measurements at gage heights 19.25 ft (5.867 m) and 24.1 ft (7.35 m); minimum, 3 ft³/s (0.085 m³/s) Aug. 31, 1932, Jan. 30, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,300 ft³/s (65 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	0930	*9930	281	18.28	5.572	Apr. 5	0930	3500	99.1	9.69	2.954
Oct. 26	0300	4880	138	12.26	3.737						

Minimum discharge, 22 ft³/s (0.62 m³/s) Aug. 10, gage height, 1.07 ft (0.326 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	115	325	109	61	74	109	106	96	104	56	28	30
2	71	249	115	80	78	109	106	96	84	53	26	29
3	93	204	106	90	86	101	109	96	77	48	26	26
4	69	181	98	94	94	112	1070	98	71	48	26	25
5	54	155	98	92	108	136	2650	106	69	47	26	25
6	47	139	96	90	94	149	1220	98	69	47	26	43
7	47	127	1450	90	84	145	752	96	71	44	32	98
8	413	121	892	84	80	127	539	93	65	41	28	159
9	5450	112	487	88	82	121	408	84	75	37	25	167
10	1080	115	294	82	90	118	334	81	75	35	23	90
11	580	98	245	76	108	115	275	81	65	118	25	57
12	399	121	312	68	110	112	236	81	67	65	33	45
13	312	112	298	78	108	814	196	79	65	106	32	44
14	249	96	192	90	120	724	173	77	84	56	34	42
15	196	96	159	98	100	347	155	75	81	44	78	39
16	181	96	152	86	88	224	149	73	71	41	37	54
17	258	88	130	80	76	170	139	75	84	38	134	57
18	253	86	112	78	78	152	133	75	91	34	90	48
19	196	84	104	88	82	130	127	75	67	32	45	42
20	610	81	109	94	92	258	127	73	59	30	35	44
21	740	79	124	88	88	188	124	73	56	29	32	37
22	408	77	91	86	80	334	118	71	53	29	30	34
23	280	77	88	80	76	316	115	71	67	29	32	34
24	249	79	86	82	84	208	253	73	86	26	33	35
25	687	81	88	86	149	170	130	155	104	30	45	35
26	2480	81	112	90	121	152	112	139	133	39	34	35
27	855	93	101	86	118	139	106	96	73	33	33	35
28	523	96	98	82	124	130	104	84	65	29	30	35
29	370	177	98	76	---	127	104	77	104	26	29	33
30	294	136	86	78	---	124	98	104	63	42	40	33
31	399	---	74	80	---	115	---	93	---	33	53	---
TOTAL	17958	3662	6604	2601	2672	6285	10268	2744	2298	1365	1200	1510
MEAN	579	122	213	83.9	95.4	203	342	88.5	76.6	44.0	38.7	50.3
MAX	5450	325	1450	98	149	814	2650	155	133	118	134	167
MIN	47	77	74	61	74	101	98	71	53	26	23	25
CFSM	3.08	.65	1.13	.45	.51	1.08	1.82	.47	.41	.23	.21	.27
IN.	3.55	.72	1.31	.51	.53	1.24	2.03	.54	.45	.27	.24	.30

CAL YR 1976 TOTAL 68997 MEAN 189 MAX 5450 MIN 30 CFSM 1.01 IN 13.65
WTR YR 1977 TOTAL 59167 MEAN 162 MAX 5450 MIN 23 CFSM .86 IN 11.71

02060500 ROANOKE (STAUNTON) RIVER AT ALTAVISTA, VA

LOCATION.--Lat 37°06'16", long 79°17'44", Pittsylvania County, Hydrologic Unit 03010101, on right bank 12 ft (4 m) upstream from bridge on U.S. Highway 29, 0.3 mi (0.5 km) south of Altavista, 0.3 mi (0.5 km) downstream from Sycamore Creek, 3.5 mi (5.6 km) upstream from Big Otter River, and at mile 286.5 (461.0 km).

DRAINAGE AREA.--1,789 mi^2 (4,634 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1930 to current year.

REVISED RECORDS.--WSP 892: 1938(M). WSP 972: 1931-33. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 503.10 ft (153.345 m) above mean sea level. Prior to Feb. 21, 1951, on left bank 50 ft (15 m) downstream at same datum.

REMARKS.--Records good. Flow regulated since 1962 by Leesville Lake (station 02059400) 9.5 mi (15.3 km) upstream and since 1963 by Smith Mountain Lake (station 02057400) 27.5 mi (44.2 km) upstream. Gage-height telemeters at station.

AVERAGE DISCHARGE.--47 years, 1,832 ft^3/s (51.88 m^3/s), 13.91 in/yr (353 mm/yr), adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 105,000 ft^3/s (2,970 m^3/s) Aug. 15, 1940, gage height, 40.08 ft (12.216 m), from floodmark, from rating curve extended above 52,000 ft^3/s (1,500 m^3/s) on basis of unit hydrograph and flood-routing studies by Corps of Engineers and records for other stations in Roanoke River basin; minimum, 13 ft^3/s (0.37 m^3/s) Jan. 30, 1966; minimum daily, 39 ft^3/s (1.10 m^3/s) July 10, 1966; minimum gage height, 1.66 ft (0.506 m) Jan. 31, 1934, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,800 ft^3/s (447 m^3/s) Apr. 5, gage height, 16.97 ft (5.172 m); minimum, 74 ft^3/s (2.10 m^3/s) Jan. 2, gage height, 1.53 ft (0.466 m), result of freezeup; minimum daily, 125 ft^3/s (3.54 m^3/s) Sept. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1580	1770	2390	195	974	992	997	951	962	826	734	782
2	271	1790	1320	196	987	1050	245	948	937	182	767	1010
3	281	1310	1100	1250	1100	974	252	939	1100	142	738	185
4	830	1380	226	1180	1030	932	6440	933	199	157	792	129
5	811	1380	227	1240	297	250	14300	904	178	2100	1040	125
6	794	471	1010	1330	283	279	11600	1590	850	802	160	741
7	980	248	5430	1440	991	1050	10300	986	729	514	132	1030
8	1360	1150	6690	368	939	992	6420	1030	752	734	714	1490
9	7160	1490	6520	202	918	963	5290	1010	772	176	916	1450
10	5460	943	5560	2230	982	955	2490	985	1420	144	802	353
11	5610	1230	819	3210	1020	944	4790	942	202	786	791	194
12	5850	1310	511	3240	275	226	2160	867	148	903	986	836
13	3680	377	6050	2870	264	634	2290	895	764	899	209	787
14	2440	227	3390	939	1060	3260	1810	759	957	852	176	782
15	1240	1180	2500	358	1450	2760	1530	763	959	1250	800	770
16	214	1160	5130	285	846	3290	856	928	956	214	800	942
17	270	1080	2770	4640	2020	1230	918	826	921	144	834	195
18	1120	1030	593	1980	609	1330	1050	824	221	877	895	165
19	1250	1160	309	1380	210	422	907	801	155	834	1030	784
20	5980	380	1440	1220	238	469	872	828	396	645	301	811
21	5430	199	1410	882	971	5200	987	853	1270	786	142	812
22	4370	453	1360	232	956	3850	1090	867	836	976	718	1080
23	768	495	1990	212	974	3060	888	882	816	166	789	728
24	319	1320	432	956	1000	1710	1050	878	1750	130	786	149
25	1660	378	246	1010	1060	1680	1100	971	355	776	807	139
26	7840	1220	316	979	267	581	1220	933	217	790	1000	771
27	7210	311	2190	974	248	314	1380	830	796	808	185	825
28	6020	356	2420	1120	1010	1290	3510	798	812	798	134	779
29	5590	3810	2770	223	---	2510	1750	813	993	933	731	777
30	2710	3560	1560	329	---	1430	972	867	1100	180	788	986
31	782	---	418	1020	---	1190	---	926	---	141	941	---
TOTAL	89880	34168	69097	37690	22979	45817	89464	28327	22523	19665	20638	20607
MEAN	2899	1139	2229	1216	821	1478	2982	914	751	634	666	687
MAX	7840	3810	6690	4640	2020	5200	14300	1590	1750	2100	1040	1490
MIN	214	199	226	195	210	226	245	759	148	130	132	125
(*)	+1081	+110	-230	-346	+111	+350	-25	-60	-156	-506	-485	-267
MEAN‡	3980	1249	1999	870	932	1828	2957	854	595	128	181	420
CFSM‡	2.22	.70	1.12	.49	.52	1.02	1.65	.48	.33	.07	.10	.23
IN‡	2.57	.78	.29	.56	.54	1.18	1.84	.55	.37	.08	.12	.26

CAL YR 1976 TOTAL 554879 MEAN 1516 MAX 7840 MIN 172 MEAN‡ 1522 CFSM‡ .85 IN‡ 11.58
WTR YR 1977 TOTAL 500855 MEAN 1372 MAX 14300 MIN 125 MEAN‡ 1337 CFSM‡ .75 IN‡ 10.15

* Change in contents, equivalent in cubic feet per second, in Smith Mountain and Leesville Lakes; furnished by Appalachian Power Co.

‡ Adjusted for change in contents.

02060500 ROANOKE (STAUNTON) RIVER AT ALTAVISTA, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951, 1953-56, 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1950 to September 1951, February 1953 to September 1956, April 1968 to current year.
WATER TEMPERATURES: October 1950 to September 1951, February 1953 to September 1956, April 1968 to current year.
SUSPENDED-SEDIMENT DISCHARGE: February 1953 to September 1956.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 580 micromhos Jan. 17, 1969; minimum, 54 micromhos Aug. 18, 1955.
WATER TEMPERATURES: Maximum, 30.0°C Aug. 10, 1951; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 191 micromhos July 24; minimum, 81 micromhos Dec. 3.
WATER TEMPERATURES: Maximum, 28.0°C Aug. 14, Sept. 4, 5; minimum, 3.5°C Feb. 1.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
OCT 15...	1900	692	150	5	59	0	14	5.8	6.6	2.1	76	9.4
NOV 15...	1500	3340	137	0	59	10	14	5.5	5.2	2.5	58	8.4
DEC 15...	1500	2340	125	5	52	14	13	4.8	4.8	2.3	47	9.5
JAN 15...	1500	335	143	0	53	5	13	4.9	6.7	2.4	58	8.9
FEB 15...	1500	3730	135	5	58	9	14	5.5	5.5	2.1	59	9.0
MAR 15...	1500	4340	125	0	57	11	15	4.8	5.1	2.2	56	7.7
MAY 15...	1900	720	160	5	67	9	19	4.8	5.1	2.6	71	11
JUN 15...	1900	3640	160	5	66	12	16	6.3	6.0	2.3	66	11
JUL 15...	1900	6120	160	0	70	12	18	6.1	7.0	2.6	71	11
AUG 15...	1900	3100	167	5	71	2	19	5.7	7.0	2.8	84	11
SEP 15...	1900	1250	158	7	67	8	17	5.9	6.2	2.6	72	9.3

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED NITRATE (N) (MG/L)	DISSOLVED NITRATE (NO3) (MG/L)	DISSOLVED NITRITE (N) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO PHOSPHATE (PO4) (MG/L)	DISSOLVED IRON (FE) (UG/L)
OCT 15...	6.1	.2	7.9	102	94	.49	2.2	.00	.49	.63	1.9	10
NOV 15...	5.9	.2	6.7	76	78	.30	1.3	.00	.30	.00	.00	10
DEC 15...	6.6	.1	8.9	72	75	.33	1.5	.00	.33	.00	.00	30
JAN 15...	8.0	.1	9.0	89	83	.31	1.4	.00	.31	.00	.00	10
FEB 15...	6.5	.1	9.0	90	83	.38	1.7	.00	.38	.01	.03	10
MAR 15...	5.9	.1	9.2	82	79	.31	1.4	.00	.31	.00	.00	10
MAY 15...	5.9	.1	9.2	116	96	.84	3.7	.00	.84	.01	.03	0
JUN 15...	7.1	.1	5.0	95	88	.32	1.4	.00	.32	.00	.00	0
JUL 15...	8.2	.1	3.7	92	93	.23	1.0	.00	.23	.00	.00	10
AUG 15...	7.5	.2	4.2	88	99	.01	.00	.00	.01	.00	.00	20
SEP 15...	7.0	.1	7.7	95	93	.30	1.3	.00	.30	.00	.00	10

02060500 ROANOKE (STAUNTON) RIVER AT ALTAVISTA, VA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	150	108	117	128	135	124	122	138	150	145	167	158
2	150	106	124	140	130	145	120	150	159	145	164	155
3	160	108	81	135	125	146	117	148	159	160	164	148
4	163	131	137	135	126	146	115	147	150	163	165	150
5	162	118	98	135	119	115	130	145	150	161	166	158
6	160	122	109	135	120	111	138	143	160	161	180	160
7	158	112	97	110	127	118	135	143	160	162	182	142
8	157	106	111	140	127	120	138	142	170	163	166	145
9	154	110	138	140	126	125	130	143	160	150	165	140
10	142	131	138	138	108	125	132	143	157	152	164	135
11	126	123	111	137	105	125	130	144	160	161	164	138
12	140	113	103	137	105	116	128	142	163	160	167	155
13	145	134	126	137	104	117	130	147	165	160	163	128
14	122	107	126	138	125	122	128	157	160	155	162	155
15	150	137	125	143	135	115	133	160	160	160	167	158
16	110	133	128	137	130	100	135	143	160	178	165	150
17	118	120	127	---	135	125	137	141	160	158	133	150
18	128	118	110	---	135	120	138	158	160	178	150	154
19	125	125	120	---	132	120	138	159	165	160	155	158
20	140	130	135	---	130	119	135	158	175	157	163	155
21	130	109	132	---	129	118	138	158	160	166	165	157
22	141	138	135	---	127	119	138	157	157	166	155	150
23	150	108	135	---	125	122	130	145	175	190	158	133
24	125	137	120	---	122	121	118	145	160	191	158	163
25	140	108	120	---	125	120	105	145	158	162	158	162
26	138	110	120	---	117	110	140	149	160	164	160	165
27	136	115	131	---	116	110	142	154	160	163	140	169
28	140	124	131	---	125	128	142	157	160	165	170	167
29	110	133	132	---	---	128	140	160	163	164	145	165
30	140	108	120	---	---	125	145	142	162	180	170	163
31	150	---	120	---	---	180	---	158	---	180	158	---
MEAN	141	119	121	135	124	121	132	149	161	164	162	153

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.0	16.0	9.0	5.0	3.5	7.0	14.5	19.0	20.0	23.5	23.0	24.0
2	20.0	16.0	11.0	5.5	4.0	7.0	14.0	19.0	21.0	25.0	23.0	24.0
3	19.0	15.0	12.0	7.0	5.0	7.0	12.0	18.0	21.0	26.0	23.0	27.0
4	19.0	15.0	9.0	7.0	5.0	7.0	11.0	18.0	23.0	23.0	23.0	28.0
5	19.0	15.0	8.0	7.0	5.0	9.5	12.0	17.5	24.0	23.0	23.5	28.0
6	19.0	12.0	10.0	7.0	5.0	10.0	12.0	18.0	21.5	23.5	26.0	24.0
7	19.0	12.0	10.0	5.5	5.0	9.0	12.0	18.0	21.0	24.0	27.0	24.0
8	19.0	14.0	10.0	5.0	5.0	10.0	12.0	18.0	21.0	24.5	24.0	24.0
9	19.0	14.0	9.0	5.5	5.0	10.0	13.0	17.0	21.0	26.5	24.0	24.0
10	19.0	13.0	9.0	6.0	5.0	10.0	13.0	17.0	20.5	27.0	24.0	25.0
11	19.0	13.0	7.5	6.0	5.0	11.0	14.0	17.0	22.0	22.5	24.0	26.0
12	19.0	13.0	7.0	5.5	4.5	13.0	14.0	19.0	21.0	22.5	24.0	22.0
13	19.0	11.0	7.0	5.0	4.5	14.0	15.0	19.0	20.5	23.5	27.0	22.0
14	19.0	11.0	7.5	5.0	4.0	12.0	15.0	19.0	20.0	23.5	28.0	22.0
15	19.0	13.0	9.0	4.5	4.5	12.0	11.0	20.0	21.0	22.0	24.0	22.0
16	18.0	13.0	9.0	4.0	5.0	12.0	14.0	21.0	21.0	27.0	24.5	22.0
17	18.0	13.0	9.0	---	5.0	12.0	12.0	21.0	21.5	24.5	22.0	22.5
18	17.0	13.0	6.5	---	5.0	12.0	18.0	19.0	23.0	28.0	23.0	23.0
19	18.0	12.0	7.0	---	6.0	11.5	19.0	19.5	23.0	24.0	23.0	24.0
20	18.0	11.0	8.0	---	5.5	11.5	19.0	19.5	22.5	23.0	26.0	22.0
21	18.0	11.0	8.0	---	6.0	11.5	18.0	20.0	22.0	22.0	26.0	22.0
22	18.0	12.0	7.5	---	6.0	12.0	18.0	20.0	22.0	22.0	23.0	22.0
23	16.0	12.0	7.0	---	6.0	12.0	17.5	20.0	22.5	25.5	23.0	22.0
24	16.0	11.0	5.0	---	7.0	12.0	17.0	19.0	22.5	26.0	23.0	24.0
25	17.0	11.0	5.0	---	7.0	12.0	17.0	19.0	25.0	22.0	24.0	25.0
26	18.0	11.0	5.5	---	8.0	14.0	17.0	18.5	25.0	22.0	23.0	23.0
27	18.0	11.0	7.0	---	8.0	14.0	16.0	19.0	23.5	22.0	23.0	23.0
28	17.0	11.0	7.0	---	7.0	13.0	16.0	19.5	23.5	22.0	27.0	21.0
29	17.0	11.0	7.0	---	---	13.0	16.0	20.0	23.0	22.0	24.0	20.5
30	15.0	11.0	7.0	---	---	13.0	17.0	20.0	23.0	26.5	23.0	20.5
31	14.0	---	6.5	---	---	14.0	---	20.0	---	27.0	23.0	---
MEAN	18.0	12.5	8.0	5.5	5.5	11.0	15.0	19.0	22.0	24.0	24.0	23.5

02061500 BIG OTTER RIVER NEAR EVINGTON, VA

LOCATION.--Lat 37°12'30", long 79°18'14", Campbell County, Hydrologic Unit 03010101, on right bank 10 ft (3 m) upstream from bridge on State Highway 682, 2.0 mi (3.2 km) southwest of Evington, and 2.1 mi (3.4 km) upstream from Flat Creek.

DRAINAGE AREA.--320 mi^2 (829 km^2).

PERIOD OF RECORD.--October 1936 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1965, published as Otter River near Evington.

REVISED RECORDS.--WSP 852: 1937. WSP 892: 1938-39(M). WSP 972: 1937-39. WSP 1032: 1940. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 544.02 ft (165.817 m) above mean sea level.

REMARKS.--Records fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--41 years, 328 ft^3/s (9.289 m^3/s), 13.92 in/yr (354 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,500 ft^3/s (779 m^3/s) Oct. 19, 1937, Aug. 19, 1939, gage height, 23.1 ft (7.04 m), from rating curve extended above 7,000 ft^3/s (200 m^3/s) on basis of unit hydrograph and flood-routing studies by Corps of Engineers, and records for other stations in Roanoke River basin; minimum, 7.5 ft^3/s (0.21 m^3/s) Sept. 14, 1966; minimum gage height, 0.63 ft (0.192 m) Sept. 12-14, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft^3/s (110 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 9	1630	*8860	251	17.40	5.304
Oct. 26	0900	6340	180	15.31	4.666

Minimum daily discharge, 28 ft^3/s (0.79 m^3/s) Aug. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	255	439	202	132	150	191	218	176	154	81	38	47
2	153	359	206	186	155	181	213	176	139	80	36	36
3	219	330	189	214	165	173	218	173	108	73	35	32
4	143	309	170	202	213	183	1060	173	98	71	32	31
5	108	284	184	189	328	223	2770	181	90	70	30	30
6	94	263	178	183	218	227	1220	194	88	69	28	40
7	86	254	1790	184	160	227	735	173	92	65	29	63
8	337	239	949	149	160	202	579	178	85	61	42	156
9	5540	227	612	165	165	191	483	154	92	57	36	204
10	1320	225	449	184	200	186	417	143	98	52	29	159
11	571	218	406	153	292	183	378	143	84	60	31	92
12	404	247	424	165	265	183	346	142	84	82	53	72
13	321	250	399	181	237	697	321	139	84	77	54	63
14	269	214	319	208	236	710	302	136	95	66	44	60
15	232	209	298	305	216	474	282	132	133	60	149	58
16	216	206	307	309	197	382	269	129	98	54	71	73
17	271	196	274	186	181	321	256	129	129	50	71	85
18	271	191	248	160	165	296	248	135	123	48	174	74
19	221	184	230	195	196	276	237	126	90	46	89	73
20	965	183	243	188	191	421	250	119	84	43	60	76
21	869	176	296	180	168	371	271	113	83	42	52	70
22	435	173	209	172	165	524	232	111	81	41	51	65
23	324	165	243	168	162	556	220	112	81	40	51	56
24	304	162	216	165	186	401	319	112	101	37	50	50
25	566	162	194	185	269	346	259	239	171	45	65	45
26	3900	162	269	206	213	311	216	259	201	59	56	41
27	931	176	227	186	204	288	204	162	107	46	49	40
28	604	191	213	191	214	273	196	133	96	42	46	39
29	476	354	211	170	---	263	189	136	183	39	41	36
30	408	276	178	160	---	252	181	465	103	58	38	36
31	498	---	204	152	---	239	---	146	---	44	62	---
TOTAL	21311	7024	10537	5773	5671	9751	13089	5039	3255	1758	1692	2000
MEAN	687	234	340	186	203	315	436	163	109	56.7	54.6	66.7
MAX	5540	439	1790	309	328	710	2770	465	201	82	174	204
MIN	86	162	170	132	150	173	181	111	81	37	28	30
CFSM	2.15	.73	1.06	.58	.63	.98	1.36	.51	.34	.18	.17	.21
IN.	2.48	.82	1.22	.67	.66	1.13	1.52	.59	.38	.20	.20	.23

CAL YR 1976 TOTAL 110546 MEAN 302 MAX 5540 MIN 33 CFSM .94 IN 12.85
WTR YR 1977 TOTAL 86900 MEAN 238 MAX 5540 MIN 28 CFSM .74 IN 10.10

02062500 ROANOKE (STAUNTON) RIVER AT BROOKNEAL, VA

LOCATION.--Lat 37°02'28", long 78°57'02", Campbell County, Hydrologic Unit 03010102, on left bank 1,600 ft (490 m) upstream from bridge on U.S. Highway 501 at Brookneal, 2.9 mi (4.7 km) upstream from Falling River, and at mile 255.9 (411.7 km).

DRAINAGE AREA.--2,415 mi² (6,255 km²).

PERIOD OF RECORD.--April 1923 to current year.

REVISED RECORDS.--WSP 892: 1928(M). WSP 972: 1928-34. WSP 1303: 1924-27(M), 1929(M), 1941(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 351.96 ft (107.277 m) above mean sea level. Apr. 30, 1923, to Aug. 29, 1929, nonrecording gage, Aug. 30, 1929, to Aug. 15, 1940, water-stage recorder, and Aug. 16 to Oct. 1, 1940, nonrecording gage at site 1,800 ft (550 m) downstream at same datum. Oct. 2, 1940, to Sept. 30, 1941, nonrecording gage at site 1,600 ft (490 m) downstream at same datum.

REMARKS.--Records good. Flow regulated since 1962 by Leesville Lake (station 02059400) 40.1 mi (64.5 km) upstream and since 1963 by Smith Mountain Lake (station 02057400) 58.1 mi (93.5 km) upstream. Gage-height telemeters at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--54 years, 2,401 ft³/s (68.00 m³/s), 13.50 in/yr (343 mm/yr), adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 130,000 ft³/s (3,680 m³/s) Aug. 15, 1940, gage height, 46.5 ft (14.17 m), at present site, from gage-height relation curve, from rating curve extended above 55,000 ft³/s (1,600 m³/s) on basis of slope-area measurement by Geological Survey, unit hydrograph and flood-routing studies by Corps of Engineers, and records for other stations in Roanoke River basin; minimum daily, 140 ft³/s (3.96 m³/s) July 25, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21,400 ft³/s (606 m³/s) Apr. 5, gage height, 22.54 ft (6.870 m); minimum daily, 210 ft³/s (5.95 m³/s) Aug. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2030	1400	4900	771	1700	1850	1760	1710	1460	1690	256	1350
2	2300	3440	2700	540	1690	1590	1560	1690	1470	1230	490	1100
3	897	3010	1900	881	1690	1840	637	1670	1570	283	1050	1200
4	691	2020	900	2410	1740	1610	3770	1690	1730	225	1040	270
5	1310	2680	700	2270	1750	1400	18600	1690	392	233	1100	220
6	1220	2340	760	2210	795	757	17600	1800	377	3050	1460	450
7	1180	705	7430	2440	788	1240	13700	2430	1330	1170	291	1350
8	1520	757	11000	2470	1660	1790	9190	1750	1140	776	210	1910
9	9300	2210	10100	666	1640	1540	7750	1690	1180	1090	483	2200
10	12100	2250	8210	1280	1680	1640	6500	1600	1200	340	1310	1700
11	5430	1510	6120	4460	1880	1610	4230	1550	2240	285	1090	450
12	6250	2210	1730	4450	1700	1500	6350	1520	351	1160	1110	400
13	4500	2500	4320	5610	806	940	2770	1460	311	1360	1460	1240
14	3060	710	8280	3370	1070	3750	4110	1470	1200	1330	417	1160
15	2550	880	4010	1690	2310	5370	3420	1210	1610	1250	423	1150
16	1160	2050	4980	1080	1900	5270	1890	1230	1560	1810	1420	1150
17	821	1950	6400	1850	2480	4320	1750	1510	1500	341	1260	1460
18	1070	1880	4060	6250	2020	2020	1760	1300	1450	258	1500	385
19	1960	1650	1010	2490	934	2230	1850	1280	404	1260	1530	323
20	6430	1490	1160	2500	579	1140	1660	1230	327	1160	1620	1150
21	10100	660	3050	2040	728	3360	1680	1310	527	896	487	1210
22	7990	900	2680	1470	1560	7940	1860	1320	1940	1110	292	1200
23	4750	1600	2940	549	1600	6490	1930	1340	1250	1390	1070	1600
24	806	1800	2910	774	1740	4230	1750	1350	1270	294	1120	1050
25	1480	1400	840	1760	2040	3120	2300	1560	3000	217	1140	283
26	10700	1000	1110	1740	1700	2850	2010	1950	732	1060	1150	250
27	10900	1750	1420	1730	695	872	2130	1520	532	1150	1280	1070
28	8610	900	3900	1870	876	961	2410	1300	1270	1150	270	1180
29	7980	2000	4370	1560	---	2660	5730	1230	1340	1120	250	1110
30	6240	5400	4320	505	---	3970	1970	1800	1690	1310	1180	1100
31	4560	---	2520	827	---	2340	---	1670	---	313	1220	---
TOTAL	139895	56552	120730	64372	41751	82200	134647	47830	36353	30311	29779	30671
MEAN	4513	1885	3895	2077	1491	2652	4488	1543	1212	978	961	1022
MAX	12100	5400	11000	6250	2480	7940	18600	2430	3000	3050	1620	2200
MIN	691	660	700	505	579	757	637	1210	311	217	210	220
(*)	+1081	+110	-230	-346	+111	+350	-25	-60	-156	-506	-485	-267
MEAN‡	5594	1995	3665	1731	1602	3002	4463	1483	1056	472	476	755
CFSM‡	2.32	.83	1.52	.72	.66	1.24	1.85	.61	.44	.20	.20	.31
IN‡	2.67	.92	1.75	.83	.69	1.43	2.06	.71	.49	.23	.23	.35

CAL YR 1976 TOTAL 861040 MEAN 2353 MAX 12600 MIN 260 MEAN‡ 2359 CFSM‡ .98 IN‡ 13.30
WTR YR 1977 TOTAL 815041 MEAN 2233 MAX 18600 MIN 210 MEAN‡ 2198 CFSM‡ .91 IN‡ 12.36

* Change in contents, equivalent in cubic feet per second, in Smith Mountain and Leesville Lakes; furnished by Appalachian Power Co.

‡ Adjusted for change in contents.

02064000 FALLING RIVER NEAR NARUNA, VA

LOCATION.--Lat 37°07'36", long 78°57'36", Campbell County, Hydrologic Unit 03010102, on left bank at upstream side of bridge on State Highway 643, 2.7 mi (4.3 km) northeast of Naruna, and 3.2 mi (5.1 km) upstream from Little Falling River.

DRAINAGE AREA.--173 mi² (448 km²).

PERIOD OF RECORD.--July 1929 to January 1935, September 1941 to current year.

REVISED RECORDS.--WSP 1333: 1930, 1931-34(M), 1935. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 412.32 ft (125.675 m) above mean sea level. Prior to Jan. 15, 1935, nonrecording gage at same site and datum.

REMARKS.--Records good. Small diurnal fluctuation at times during low flow, cause unknown. Prior to 1958, diurnal fluctuation caused by gristmill at Spring Mills. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--41 years (water years 1930-34, 1942-77), 145 ft³/s (4.106 m³/s), 11.38 in/yr (289 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,600 ft³/s (923 m³/s) June 22, 1972, gage height, 29.21 ft (8.903 m), from rating curve extended above 6,100 ft³/s (170 m³/s) on basis of slope-area measurement of peak flow; minimum, 3.0 ft³/s (0.085 m³/s) Oct. 9, 1932, gage height, 2.18 ft (0.664 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 26.5 ft (8.08 m), from floodmarks, discharge, 22,000 ft³/s (620 m³/s), by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,300 ft³/s (65 m³/s) and maximum (*):

Date	Time	Discharge		Gage height	
		(ft³/s)	(m³/s)	(ft)	(m)
Oct. 9	1830	2780	78.7	10.18	3.103
Oct. 20	1800	*3290	93.2	11.30	3.444
Oct. 26	0600	2320	65.7	9.14	2.786
Dec. 7	1200	2890	81.8	10.44	3.182
Apr. 4	1130	2500	70.8	9.54	2.908

Minimum discharge, 16 ft³/s (0.45 m³/s) Aug. 6-7, 9, gage height, 2.53 ft (0.771 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	127	205	207	125	91	130	111	110	85	49	22	29
2	83	155	171	111	90	119	110	95	76	46	21	24
3	339	137	147	112	97	112	126	100	65	42	20	21
4	115	126	130	113	143	116	1270	126	61	40	21	20
5	70	114	122	114	208	125	1380	135	59	40	20	25
6	58	105	115	113	144	157	442	122	60	40	17	21
7	51	102	1480	123	122	164	263	129	73	37	16	22
8	62	96	568	112	112	135	214	196	59	35	17	43
9	1120	91	306	126	114	122	181	108	63	33	22	56
10	420	91	229	134	126	115	167	92	67	31	24	51
11	164	89	213	129	150	111	157	89	57	31	21	35
12	108	110	281	124	142	109	146	87	56	35	20	28
13	87	115	246	137	162	312	138	84	56	34	21	26
14	76	100	187	154	150	218	132	82	71	31	35	26
15	67	96	177	214	134	163	126	78	103	28	39	25
16	64	93	188	181	121	141	120	76	72	26	30	26
17	231	89	165	158	107	124	116	77	65	25	31	39
18	178	88	146	145	104	121	117	75	67	24	63	34
19	114	86	138	132	107	113	141	73	58	23	37	29
20	1500	85	156	122	109	342	119	72	53	22	29	26
21	809	83	222	115	101	226	112	71	49	21	26	24
22	252	81	157	108	95	539	113	69	46	21	26	23
23	166	78	147	104	98	316	111	70	53	21	27	22
24	149	76	135	100	138	211	141	72	65	19	31	23
25	267	78	136	104	203	173	127	110	80	21	31	23
26	1230	78	256	99	149	153	117	110	86	35	27	23
27	312	87	194	104	143	140	103	91	61	27	25	24
28	195	205	167	111	158	135	108	78	59	22	24	23
29	154	1140	154	105	---	130	109	75	74	21	23	21
30	139	343	133	99	---	131	111	83	56	28	22	20
31	271	---	131	94	---	121	---	82	---	27	39	---
TOTAL	8982	4422	7204	3822	3618	5326	6736	2925	1955	937	827	832
MEAN	290	147	232	123	129	172	225	94.4	65.2	30.2	26.7	27.7
MAX	1500	1140	1480	214	208	539	1380	196	103	49	63	56
MIN	51	76	115	94	90	109	103	69	46	19	16	20
CFSM	1.68	.85	1.34	.71	.75	.99	1.30	.55	.38	.18	.15	.16
IN.	1.93	.95	1.55	.82	.78	1.14	1.45	.63	.42	.20	.18	.18

CAL YR 1976 TOTAL 58398 MEAN 160 MAX 2570 MIN 21 CFSM .93 IN 12.56
WTR YR 1977 TOTAL 47584 MEAN 130 MAX 1500 MIN 16 CFSM .75 IN 10.23

02065500 CUB CREEK AT PHENIX, VA

LOCATION.--Lat 37°04'45", long 78°45'50", Charlotte County, Hydrologic Unit 03010102, on right bank 10 ft (3 m) upstream from bridge on State Highway 40, 0.9 mi (1.4 km) west of Phenix, 1.9 mi (3.1 km) downstream from Rough Creek, and 6.4 mi (10.3 km) upstream from Louse Creek.

DRAINAGE AREA.--98.0 mi² (253.8 km²).

PERIOD OF RECORD.--August 1946 to current year.

REVISED RECORDS.--WSP 1333: 1947(M), 1948, 1949(M). WSP 2104: Drainage area. WDR VA-76-1: 1975.

GAGE.--Water-stage recorder. Datum of gage is 370.19 ft (112.834 m) above mean sea level. Prior to July 14, 1950, nonrecording gage at same site and datum.

REMARKS.--Records good except those for January, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--31 years, 94.2 ft³/s (2.668 m³/s), 13.05 in/yr (331 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,380 ft³/s (209 m³/s) June 22, 1972, gage height, 20.37 ft (6.209 m), from floodmark in gage house, from rating curve extended above 2,700 ft³/s (76 m³/s); minimum, 2.6 ft³/s (0.074 m³/s) Oct. 6, 1970, gage height, 0.74 ft (0.226 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 17.5 ft (5.33 m), from floodmark.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 10	0830	1180	33.4	7.66	2.335	Apr. 5	1100	1040	29.5	7.15	2.179
Oct. 21	1130	*2000	56.6	10.15	3.094						

Minimum discharge, 11 ft³/s (0.31 m³/s) Aug. 13, gage height, 0.99 ft (0.302 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	160	150	101	80	111	88	60	53	34	15	19
2	79	109	110	98	75	101	90	62	50	31	14	15
3	208	93	96	97	74	93	98	60	44	29	15	13
4	102	87	85	96	90	93	197	72	42	26	16	13
5	54	82	83	96	96	101	722	89	40	26	15	13
6	44	76	79	98	90	116	527	96	40	25	14	14
7	38	74	224	103	85	136	219	75	51	24	14	15
8	42	72	602	105	80	112	153	160	43	22	13	20
9	271	67	271	98	77	99	131	99	44	21	15	56
10	826	68	160	101	80	94	118	71	50	20	16	50
11	166	67	151	90	90	89	112	66	42	26	12	32
12	80	71	193	88	98	88	107	63	41	28	14	26
13	65	80	226	80	120	136	99	60	41	40	12	22
14	60	71	154	80	118	210	96	57	45	33	17	19
15	53	69	138	81	99	132	90	54	62	27	20	17
16	51	68	145	83	90	112	86	50	50	25	45	18
17	148	65	133	85	85	99	81	50	45	23	29	26
18	247	65	120	90	80	96	80	50	44	21	50	26
19	112	63	111	92	78	94	79	48	40	20	30	22
20	252	63	119	97	77	162	76	46	36	19	26	19
21	1360	62	167	97	75	219	72	45	35	19	26	17
22	472	61	132	89	77	290	72	44	31	18	22	16
23	127	60	119	84	80	312	70	44	36	17	19	15
24	106	59	111	80	102	176	74	45	46	16	15	16
25	138	60	110	80	193	136	82	79	51	16	20	14
26	306	60	193	85	130	119	70	122	54	18	19	16
27	361	69	186	96	123	110	66	70	44	17	17	15
28	131	86	144	96	136	105	63	53	38	16	15	15
29	104	338	131	92	---	102	63	48	56	15	14	13
30	93	483	115	86	---	99	60	48	43	15	14	12
31	126	---	110	81	---	97	---	50	---	14	13	---
TOTAL	6294	2908	4868	2833	2684	3947	3930	2036	1337	701	604	602
MEAN	203	96.9	157	91.4	95.9	127	131	65.7	44.6	22.6	19.5	20.1
MAX	1360	483	602	105	193	312	722	160	62	40	50	56
MIN	38	59	79	80	74	88	60	44	31	14	12	12
CFSM	2.07	.99	1.60	.93	.98	1.30	1.34	.67	.46	.23	.20	.21
IN.	2.39	1.10	1.85	1.08	1.02	1.50	1.50	.77	.51	.27	.23	.23

CAL YR 1976 TOTAL 40025 MEAN 109 MAX 1360 MIN 18 CFSM 1.11 IN 15.19
WTR YR 1977 TOTAL 32729 MEAN 89.7 MAX 1360 MIN 12 CFSM .92 IN 12.42

02066000 ROANOKE (STAUNTON) RIVER AT RANDOLPH, VA

LOCATION.--Lat 36°54'54", long 78°44'28", Halifax County, Hydrologic Unit 03010102, on right bank 14 ft (4 m) downstream from bridge on State Highway 746, 2.8 mi (4.5 km) northwest of Randolph, 3.6 mi (5.8 km) upstream from Roanoke Creek, and at mile 227.3 (365.7 km).

DRAINAGE AREA.--2,977 mi² (7,710 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1900 to September 1906, October 1927 to September 1930, October 1950 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1902, published as Staunton River at Randolph. Gage heights collected since 1905 at this site or at former site are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1203: 1928-30. WSP 1303: 1901-6. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 307.59 ft (93.753 m) above mean sea level. Aug. 27, 1900, to Oct. 13, 1902, nonrecording gage at site 3.2 mi (5.1 km) downstream at datum about 5.9 ft (1.80 m) lower. Oct. 14, 1902, to Aug. 11, 1906, and Oct. 1, 1927, to Mar. 31, 1930, nonrecording gage at site of original gage at datum 3.93 ft (1.198 m) lower than present datum.

REMARKS.--Records good. Flow regulated since 1962 by Leesville Lake (station 02059400) 68.7 mi (110.5 km) upstream and since 1963 by Smith Mountain Lake (station 02057400) 86.7 mi (139.5 km) upstream. Gage-height telemeters at station.

AVERAGE DISCHARGE.--36 years, 3,077 ft³/s (87.14 m³/s), 14.04 in/yr (357 mm/yr), adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 97,000 ft³/s (2,750 m³/s) Dec. 31, 1901, gage height, 35.0 ft (10.67 m), from graph based on gage readings, site and datum then in use; minimum daily, 179 ft³/s (5.07 m³/s) Sept. 8, 1968, July 7, 1970.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 16, 1940, reached a stage of 41.6 ft (12.68 m), present site and datum, discharge, 150,000 ft³/s (4,250 m³/s), from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21,600 ft³/s (612 m³/s) Apr. 6, gage height, 23.15 ft (7.056 m); minimum daily, 292 ft³/s (8.27 m³/s) Aug. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1490	2930	6880	1650	1720	1850	2540	1730	1600	1720	400	1450
2	2650	3370	4170	917	1810	1980	2010	1680	1620	1390	350	1160
3	1720	3270	2720	911	1790	1870	1450	1690	1590	1040	483	1280
4	1430	2650	2300	1960	1840	1940	1170	1680	1710	470	1000	1040
5	1280	2390	1220	2150	2010	1870	11600	1760	1060	440	1030	391
6	1340	2440	1010	2220	1490	1380	20300	1760	581	1940	1270	322
7	1260	1530	4070	2340	1110	1560	15800	2430	871	1420	443	397
8	1460	982	11800	2420	1540	2300	11400	1950	1220	974	330	1640
9	4570	1740	10400	1530	1740	2040	8150	1920	1220	919	292	2470
10	14900	2250	8770	1010	1720	1850	6780	1670	1370	941	1160	2540
11	9030	1960	7580	3060	1880	1850	4300	1560	1870	500	1070	1340
12	7370	1910	3030	4490	2090	1850	6350	1560	1110	530	1040	655
13	7060	2270	2870	4490	1490	1460	4000	1450	537	1310	1220	807
14	4790	1490	8090	4100	1370	2830	3950	1500	720	1310	1060	1200
15	3470	932	5000	2590	1940	5720	3520	1310	1580	1220	438	1160
16	2080	1650	4450	1730	2370	4830	2860	1260	1650	1560	650	1140
17	1270	2110	6890	1250	1800	5050	1820	1450	1530	1080	1230	1360
18	2130	1860	4540	5620	2910	2930	1890	1370	1480	420	1370	920
19	2230	1800	2040	3010	1590	2300	2040	1340	1130	600	1560	484
20	3930	1840	1340	2400	1110	2150	1840	1290	590	1270	1420	657
21	14000	1400	2770	2350	1010	2730	1770	1290	526	885	998	1210
22	10400	818	2970	1960	1480	7380	1920	1350	1390	988	408	1190
23	6980	1390	2580	1150	1680	7600	2010	1330	1340	1220	472	1410
24	2310	1670	3300	978	1770	5860	1750	1350	1310	945	1120	1210
25	1580	1870	1670	1660	2310	3750	2130	1480	2690	390	1160	818
26	7290	1440	1420	1850	2470	3430	2170	1990	1840	300	1160	392
27	12800	1630	1920	1800	1510	2480	2120	1930	930	1080	1340	590
28	9550	1430	3510	1810	1310	1430	2270	1480	970	1090	1010	1170
29	7870	4600	4070	1970	---	1800	4470	1350	1620	1060	376	1150
30	7100	7700	4290	1030	---	3930	3010	1360	1660	1130	392	1100
31	4760	---	2020	917	---	3040	---	1950	---	966	1140	---
TOTAL	160100	65322	129690	67303	48860	93040	137390	49220	38915	31108	28590	32653
MEAN	5165	2177	4184	2171	1745	3001	4580	1588	1297	1003	922	1088
MAX	14900	7700	11800	5620	2910	7600	20300	2430	2690	1940	1560	2540
MIN	1260	818	1010	911	1010	1380	1170	1260	526	300	292	322
(*)	+1081	+110	-230	-346	+111	+350	-25	-60	-156	-506	-485	-267
MEAN•	6246	2287	3954	1825	1856	3351	4555	1528	1141	497	437	821
CFSM•	2.10	.77	1.33	.61	.62	1.13	1.53	.51	.38	.17	.15	.28
IN•	2.42	.86	1.53	.71	.65	1.30	1.71	.59	.43	.19	.17	.31

CAL YR 1976 TOTAL 1012326 MEAN 2766 MAX 15200 MIN 494 MEAN• 2772 CFSM• .93 IN• 12.68
WTR YR 1977 TOTAL 882191 MEAN 2417 MAX 20300 MIN 292 MEAN• 2382 CFSM• .80 IN• 10.86

* Change in contents, equivalent in cubic feet per second, in Smith Mountain and Leesville Lakes; furnished by Appalachian Power Co.

• Adjusted for change in contents.

02066000 ROANOKE (STAUNTON) RIVER AT RANDOLPH, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1930, 1951 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1950 to September 1956, April 1968 to current year.
WATER TEMPERATURES: October 1950 to September 1956, April 1968 to current year.
SUSPENDED-SEDIMENT DISCHARGE: January 1954 to current year.

REMARKS.--Daily sediment records based on once-weekly sediment samples and water-discharge hydrograph.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 470 micromhos May 9, 1976; minimum, 40 micromhos Sept. 29, 1975.
WATER TEMPERATURES: Maximum, 35.0°C Aug. 15, 1968; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 220 micromhos June 19; minimum, 52 micromhos Oct. 27.
WATER TEMPERATURES: Maximum, 28.0°C July 8, 9; minimum, 0.0°C on many days during January and February.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
OCT												
15...	0800	6140	100	30	40	5	9.6	3.9	4.5	1.8	42	7.4
NOV												
15...	0800	945	106	5	43	4	11	3.8	5.1	2.2	48	7.0
DEC												
15...	0800	5560	105	10	47	14	12	4.2	4.7	2.2	40	8.5
JAN												
15...	0800	2230	132	0	50	9	12	4.9	5.4	2.6	51	8.2
FEB												
15...	0800	1440	118	0	37	3	8.7	3.7	6.5	5.2	41	6.7
MAR												
15...	0800	5280	96	0	34	4	8.5	3.1	4.6	2.1	37	6.9
APR												
15...	0800	1000	114	60	45	6	11	4.3	5.0	2.0	48	7.4
MAY												
15...	0800	1220	123	10	49	7	12	4.5	6.1	2.3	51	8.5
JUN												
15...	0800	1230	135	5	49	11	12	4.7	6.6	3.6	47	9.6
JUL												
15...	0800	1140	143	5	58	10	16	5.0	6.8	2.5	56	9.7
AUG												
15...	0800	666	144	7	63	7	16	5.6	7.4	2.9	68	8.8
SEP												
15...	0800	965	149	9	58	3	14	5.1	6.7	2.6	64	8.9

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED NITRATE (N) (MG/L)	DISSOLVED NITRATE (NO3) (MG/L)	DISSOLVED NITRITE (N) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO PHOSPHATE (PO4) (MG/L)	DISSOLVED IRON (FE) (UG/L)
OCT												
15...	6.6	.2	9.0	73	63	.38	1.7	.00	.38	.01	.03	50
NOV												
15...	6.5	.2	11	66	70	.38	1.7	.00	.38	.01	.03	20
DEC												
15...	6.8	.1	10	63	69	.41	1.8	.00	.41	.02	.06	40
JAN												
15...	5.4	.1	9.7	87	76	.43	1.9	.00	.43	.00	.00	20
FEB												
15...	7.3	.1	12	77	72	.40	1.8	.00	.40	.01	.03	70
MAR												
15...	6.6	.1	9.9	66	60	.44	1.9	.00	.44	.03	.09	100
APR												
15...	6.2	.1	8.4	66	69	.40	1.8	.00	.40	.01	.03	20
MAY												
15...	5.5	.1	8.3	81	74	.36	1.6	.00	.36	.03	.09	20
JUN												
15...	6.0	.1	9.0	86	79	1.1	4.9	.00	1.1	.02	.06	20
JUL												
15...	6.6	.1	7.1	88	81	.45	2.0	.01	.46	.01	.03	10
AUG												
15...	6.9	.1	7.1	92	91	.60	2.7	.00	.60	.07	.21	20
SEP												
15...	6.7	.1	7.4	86	85	.37	1.6	.00	.37	.00	.00	10

02066000 ROANOKE (STAUNTON) RIVER AT RANDOLPH, VA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	110	97	98	120	94	105	87	110	115	129	155	140
2	135	88	123	97	115	106	92	113	125	130	150	133
3	93	100	125	97	130	117	107	115	117	133	148	150
4	103	89	125	97	116	114	108	118	135	134	138	153
5	76	108	122	118	117	105	99	110	135	133	150	138
6	107	88	111	133	129	105	98	117	132	159	160	145
7	135	114	83	135	98	102	103	115	135	158	165	160
8	140	80	70	133	97	108	108	110	135	150	143	135
9	120	107	89	131	117	108	105	100	132	147	145	140
10	118	95	117	131	116	110	106	130	130	139	150	140
11	118	97	113	140	115	89	107	140	135	115	150	140
12	118	97	89	135	112	85	110	118	130	134	143	140
13	137	91	85	140	89	85	110	116	135	127	155	137
14	107	77	105	130	98	88	120	113	120	146	153	122
15	100	106	105	132	110	94	110	123	123	143	148	144
16	130	97	110	140	112	117	108	108	125	153	150	152
17	90	92	110	148	111	107	110	137	165	160	150	153
18	90	92	98	100	115	122	108	135	172	161	140	152
19	82	109	92	138	116	108	110	135	220	160	138	152
20	81	98	122	100	112	85	113	135	167	140	130	146
21	80	111	120	103	110	84	100	136	170	159	145	130
22	80	110	120	130	110	97	85	137	163	165	143	152
23	101	105	107	108	110	97	100	142	168	165	145	160
24	63	115	115	106	114	96	100	135	165	166	143	160
25	61	112	117	108	106	110	100	130	165	165	138	156
26	81	112	120	120	105	112	105	115	125	160	140	156
27	52	97	119	120	96	111	120	117	126	162	145	152
28	83	97	119	110	97	110	120	119	114	158	115	147
29	116	96	123	111	---	113	108	112	136	165	133	150
30	108	66	118	113	---	112	132	114	135	150	145	141
31	84	---	94	113	---	118	---	115	---	140	143	---
MEAN	99	98	108	120	110	104	107	122	142	148	145	146

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.0	9.0	2.5	0.0	0.0	2.0	10.0	14.0	20.0	25.0	26.0	25.0
2	18.0	7.5	4.0	0.5	0.0	2.5	9.0	14.5	19.0	25.0	26.0	24.0
3	17.0	7.0	4.0	0.0	0.5	6.5	9.0	15.0	19.0	25.0	25.0	25.0
4	17.5	8.0	4.0	0.5	2.5	9.0	11.0	17.0	19.0	26.0	25.0	25.0
5	18.0	8.0	5.0	1.0	4.0	8.5	8.0	18.0	19.0	26.5	25.0	25.0
6	18.5	5.0	5.5	0.5	1.5	8.0	6.0	18.0	18.0	27.0	26.0	27.0
7	18.0	5.0	7.0	0.5	0.5	7.5	6.0	19.0	18.0	27.0	25.0	26.0
8	18.0	4.5	5.5	0.0	0.0	9.0	6.0	18.0	19.0	28.0	25.0	23.0
9	18.0	5.0	4.5	0.0	0.5	9.0	5.0	15.0	18.5	28.0	26.0	23.0
10	11.0	6.0	6.0	0.0	2.0	9.5	9.5	14.0	18.0	26.0	24.0	20.0
11	10.5	6.0	6.0	0.0	2.5	10.0	10.0	14.5	19.0	25.0	25.0	18.0
12	11.0	6.0	7.0	0.0	3.0	10.5	13.0	20.0	19.0	26.0	24.0	18.0
13	11.0	5.0	8.0	0.0	3.5	11.0	14.0	20.0	20.0	25.5	25.0	18.5
14	10.0	6.0	7.5	0.0	4.0	11.0	15.0	19.0	20.0	26.0	26.0	20.0
15	10.0	5.0	8.0	0.0	4.0	10.5	15.0	19.0	20.0	26.0	26.0	22.0
16	12.0	5.0	7.5	0.0	3.5	11.0	15.0	20.0	20.0	26.0	25.0	22.0
17	10.0	6.0	6.5	0.0	2.5	10.5	15.0	20.0	22.0	27.0	25.0	23.5
18	8.0	6.0	6.0	0.0	6.5	10.0	15.0	20.0	23.0	27.0	25.0	24.0
19	8.5	7.0	7.0	0.0	1.0	8.5	15.0	20.0	24.0	27.0	23.0	24.0
20	8.0	7.0	7.0	0.0	1.5	9.0	16.0	20.0	24.0	27.0	23.0	23.0
21	9.5	8.0	6.5	0.0	2.5	9.0	15.0	20.0	24.0	27.0	24.0	21.0
22	11.0	8.0	7.5	0.0	4.0	7.0	15.0	21.0	24.0	26.0	24.0	20.0
23	7.5	6.0	6.5	0.0	4.5	6.5	15.0	21.0	23.0	25.5	24.0	21.5
24	10.0	6.0	6.5	0.0	8.0	7.0	15.0	21.0	24.0	26.0	25.0	22.0
25	11.0	7.0	8.0	0.0	5.5	7.5	15.0	20.0	24.0	25.0	26.0	21.0
26	11.0	7.0	7.5	0.0	6.0	8.5	14.0	20.0	24.5	25.0	26.0	21.0
27	8.5	7.5	7.0	0.0	6.0	10.0	13.0	20.0	25.0	23.5	25.0	20.5
28	10.0	8.0	7.0	0.0	5.5	10.5	13.0	20.0	25.0	23.0	26.0	20.0
29	5.5	7.0	6.5	0.0	---	11.5	13.0	20.0	25.0	24.0	26.0	19.0
30	6.0	5.0	5.0	0.0	---	12.0	12.0	20.0	25.0	25.0	25.0	19.0
31	8.0	---	0.5	0.0	---	12.0	---	20.0	---	26.0	25.0	---
MEAN	12.0	6.5	6.0	0.0	3.0	9.0	12.0	18.5	21.5	26.0	25.0	22.0

ROANOKE RIVER BASIN

02066000 ROANOKE (STAUNTON) RIVER AT RANDOLPH, VA--Continued

SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	29	80	21	166	39	1130	18	80	19	84	20	100
2	36	240	26	227	51	526	12	30	21	103	20	107
3	25	116	20	177	44	323	8	20	15	72	20	101
4	15	56	15	107	32	190	18	95	15	75	23	125
5	15	52	15	97	26	90	16	91	16	67	25	126
6	16	51	16	105	21	97	18	108	14	56	25	93
7	16	64	12	90	80	646	17	107	12	36	45	190
8	15	63	10	27	190	6050	15	90	20	83	50	310
9	60	740	16	66	120	3190	11	65	26	113	60	220
10	240	4440	16	47	98	1300	9	25	21	98	35	175
11	41	2130	16	41	41	436	26	219	17	86	30	150
12	40	1490	14	93	20	164	36	436	13	85	33	105
13	74	1460	15	47	17	132	36	417	12	60	29	116
14	55	711	10	65	95	2040	37	356	13	68	60	458
15	37	367	8	20	66	631	30	210	16	96	110	1700
16	22	126	12	53	65	441	27	126	22	141	71	926
17	16	55	15	45	36	1410	15	51	18	67	70	956
18	23	132	15	75	67	536	70	1180	25	196	54	627
19	22	132	15	73	22	121	29	236	16	60	45	270
20	64	722	16	66	14	41	22	143	12	36	35	203
21	250	10400	13	62	24	300	20	127	14	38	67	366
22	95	2360	8	18	30	241	15	79	14	72	160	3190
23	60	756	16	53	35	176	10	31	16	73	125	2570
24	21	125	13	50	33	246	10	26	18	84	88	1300
25	16	60	17	66	25	113	13	54	29	125	45	456
26	150	2450	13	51	16	41	15	75	20	133	43	304
27	290	10000	17	75	14	93	16	64	18	73	35	236
28	110	2440	12	64	37	351	14	48	15	53	20	106
29	57	1210	60	764	36	376	15	80	---	---	56	262
30	36	452	85	1050	55	608	13	38	---	---	250	2650
31	35	306	---	---	26	183	13	32	---	---	140	1150
TOTAL	---	52546	---	4853	---	22796	---	4766	---	2354	---	19672
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	25	480	25	117	26	112	65	202	15	16	50	196
2	55	264	23	154	25	109	60	225	20	19	55	157
3	45	176	20	41	25	107	50	140	30	40	70	242
4	40	126	20	41	33	152	26	30	37	100	40	112
5	515	16100	22	150	15	43	14	21	45	111	20	21
6	180	4470	25	119	16	22	43	436	44	151	15	13
7	64	2650	40	262	16	43	70	268	26	71	20	21
8	65	1760	37	195	20	92	95	145	15	13	76	337
9	105	2200	35	156	25	42	95	176	12	9.5	95	636
10	70	1240	26	113	20	106	60	102	40	157	90	617
11	56	473	27	116	45	221	25	36	50	166	50	101
12	170	2410	25	105	25	75	23	33	65	126	26	46
13	55	556	23	41	15	22	96	195	85	216	55	120
14	41	427	22	40	20	36	60	212	40	114	65	211
15	36	333	20	71	63	143	95	141	25	30	45	141
16	35	275	18	41	45	900	36	370	30	60	44	135
17	26	123	21	43	47	196	50	166	64	226	50	166
18	24	124	20	76	57	238	18	20	95	277	37	92
19	24	156	21	33	26	70	20	65	90	370	20	26
20	26	116	15	52	17	27	90	171	90	360	30	53
21	20	96	16	60	15	21	41	96	61	166	45	167
22	22	116	14	64	51	199	45	120	35	36	35	112
23	24	136	14	64	58	198	58	106	35	32	46	175
24	26	113	14	65	40	212	32	42	50	151	37	121
25	24	161	23	42	48	605	20	21	46	146	23	51
26	35	176	47	215	65	323	22	16	50	157	16	15
27	35	208	35	142	40	121	41	120	64	266	27	43
28	36	221	26	150	40	147	40	110	35	95	30	95
29	170	1230	25	41	44	253	40	114	15	15	25	70
30	66	356	23	46	42	276	43	131	15	16	25	76
31	---	---	35	146	---	---	30	98	42	129	---	---
TOTAL	---	43354	---	3361	---	6516	---	4233	---	3057.5	---	4450

TOTAL LOAD FOR YEAR: 166745.5 TONS.

02067800; 02067820 TALBOTT AND TOWNES RESERVOIRS NEAR KIBLER, VA

LOCATION.--Talbott Dam: Lat 36°40'30", long 80°23'52", Patrick County, Hydrologic Unit 03010103, on Dan River 4.5 mi (7.2 km) northeast of Kibler. Townes Dam: Lat 36°41'10", long 80°25'50", Patrick County, Hydrologic Unit 03010103, on Dan River about 4 mi (6 km) north of Kibler.

DRAINAGE AREA.--Talbott Dam, 20.2 mi² (52.3 km²); Townes Dam, 32.9 mi² (85.2 km²).

PERIOD OF RECORD.--February 1939 to December 1945, January 1948 to September 1960 (published in WSP 1723), and October 1960 to current year.

REMARKS.--The two reservoirs are operated as a unit for storage of water for Pinnacles hydroelectric plant. Total capacity of Talbott Reservoir, 8,035 acre-ft (9.91 hm³), and Townes Reservoir, 1,377 acre-ft (1.70 hm³). Storage began in Talbott Reservoir on Feb. 13, 1939, and in Townes Reservoir several months earlier.

COOPERATION.--Records furnished by city of Danville.

COMBINED MONTHEND CONTENTS AT 2400, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	8070	
Oct. 31	8580	+510
Nov. 30	8350	-230
Dec. 31	8390	+40
CAL YR 1976		+140
Jan. 31	7770	-620
Feb. 28	7810	+40
Mar. 31	8470	+660
Apr. 30	8350	-120
May 31	7810	-540
June 30	7640	-170
July 31	7110	-530
Aug. 31	6800	-310
Sept. 30	7930	+1130
WTR YR 1977		-140

02068500 DAN RIVER NEAR FRANCISCO, NC

LOCATION.--Lat 36°30'53", long 80°18'11", Stokes County, Hydrologic Unit 03010103, on left bank 200 ft (61 m) upstream from bridge on State Highway 704, 700 ft (213 m) downstream from Georges Mill, 0.2 mi (0.3 km) downstream from Elk Creek, 3 mi (5 km) east of Francisco, and 7.9 mi (12.7 km) downstream from Little Dan River.

DRAINAGE AREA.--124 mi² (321 km²).

PERIOD OF RECORD.--August 1924 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 892: Drainage area. WSP 1303: 1938-50 (monthly runoff). WSP 1433: 1925-26, 1928-29, 1931, 1942, 1948.

GAGE.--Water-stage recorder. Altitude of gage is 830 ft (253 m), from topographic map. Prior to Nov. 15, 1929, nonrecording gage at same site and datum.

REMARKS.--Records good. Considerable diurnal fluctuation and regulation from mills and powerplants above station. Talbott Reservoir (station 02067800) and Townes Reservoir (station 02067820) above Pinnacles hydroelectric plant in Virginia, 28 mi (45 km) above station, were completed in 1938.

AVERAGE DISCHARGE.--53 years, 188 ft³/s (5.324 m³/s), 20.59 in/yr (523 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,400 ft³/s (351 m³/s) Oct. 19, 1937, gage height, 12.45 ft (3.795 m); minimum, 7.1 ft³/s (0.20 m³/s) Sept. 8, 1932, gage height, 0.43 ft (0.131 m); minimum daily, 28 ft³/s (0.79 m³/s) Aug. 17, 18, 1963, Sept. 12, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1916 reached a stage of about 15 ft (4.6 m), from information by local residents, discharge, 16,000 ft³/s (453 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft³/s (57 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	0330	*4260	121	6.72	2.048	Apr. 5	0800	2660	75.3	5.21	1.588
Oct. 25	2400	2460	69.7	5.01	1.527						

Minimum discharge, 46 ft³/s (1.30 m³/s) Sept. 30, gage height, 1.06 ft (0.323 m); minimum daily, 54 ft³/s (1.53 m³/s) Aug. 1, 2, Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	159	188	234	170	150	143	178	134	93	139	54	101
2	124	218	207	180	190	161	178	158	143	118	54	105
3	120	220	207	170	160	142	183	174	116	72	91	95
4	87	201	190	160	134	194	204	170	99	69	65	82
5	130	198	125	160	136	206	1320	143	102	68	63	59
6	115	180	139	160	160	256	496	152	94	142	90	63
7	134	142	862	147	170	259	387	205	123	141	104	103
8	558	124	383	151	230	262	345	150	77	116	116	206
9	2330	193	275	142	220	242	274	110	82	125	133	133
10	523	155	206	159	187	219	229	154	76	109	111	83
11	352	134	185	170	139	203	187	129	73	131	104	71
12	268	137	217	170	127	173	221	115	72	138	79	65
13	267	122	169	160	190	526	244	119	72	164	123	65
14	203	129	226	160	163	418	241	147	137	116	89	66
15	187	140	244	160	141	250	226	162	85	111	108	65
16	183	163	247	149	138	194	202	115	103	95	74	85
17	207	131	213	170	153	195	168	146	103	79	87	98
18	188	127	165	180	153	228	161	192	113	70	108	76
19	201	113	132	160	145	197	221	169	93	123	76	70
20	340	91	196	150	110	233	218	185	74	109	68	91
21	326	112	240	150	125	198	199	104	135	106	65	66
22	281	108	272	132	113	275	195	120	96	93	92	63
23	200	134	162	120	119	241	190	84	105	69	105	63
24	165	129	140	127	183	224	320	93	104	61	77	64
25	407	122	136	115	167	191	190	90	132	60	120	63
26	836	92	205	131	119	169	194	116	89	62	69	80
27	313	106	146	145	131	146	198	135	91	57	68	70
28	263	247	146	138	135	146	165	129	142	55	66	84
29	241	526	132	112	---	175	152	100	154	56	64	151
30	196	265	179	140	---	202	156	124	132	59	89	54
31	246	---	143	140	---	189	---	86	---	56	94	---
TOTAL	10150	4947	6723	4678	4288	6857	7842	4210	3110	2969	2706	2540
MEAN	327	165	217	151	153	221	261	136	104	95.8	87.3	84.7
MAX	2330	526	862	180	230	526	1320	205	154	164	133	206
MIN	87	91	125	112	110	142	152	84	72	55	54	54
(*)	+8	-4	+1	-10	+1	+11	-2	-9	-3	-9	-5	+19

CAL YR 1976 TOTAL 68794 MEAN 188 MAX 2330 MIN 59 MEAN‡ 188 CFSM‡ 1.52 IN‡ 20.65
WTR YR 1977 TOTAL 61020 MEAN 167 MAX 2330 MIN 54 MEAN‡ 167 CFSM‡ 1.35 IN‡ 18.28

* Change in contents, equivalent in cubic feet per second, in Talbott and Townes Reservoirs; furnished by city of Danville, Va.

‡ Adjusted for change in contents.

02069700 SOUTH MAYO RIVER NEAR NETTLERIDGE, VA

LOCATION.--Lat 36°34'15", long 80°07'47", Patrick County, Hydrologic Unit 03010103, on right bank 60 ft (18 m) downstream from bridge on State Highway 700, 1.2 mi (1.9 km) southeast of Nettleridge, 1.4 mi (2.3 km) downstream from Russell Creek, and 3.6 mi (5.8 km) upstream from Spoon Creek.

DRAINAGE AREA.--84.6 mi^2 (219.1 km^2).

PERIOD OF RECORD.--October 1962 to current year.

REVISED RECORDS.--WSP 2104: Drainage area. WDR VA-74: 1972(M).

GAGE.--Water-stage recorder. Datum of gage is 871.60 ft (265.664 m) above mean sea level. Prior to Oct. 9, 1964, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Records good except those for January, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--15 years, 122 ft^3/s (3.455 m^3/s), 19.58 in/yr (497 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,500 ft^3/s (354 m^3/s) June 21, 1972, gage height, 18.32 ft (5.584 m), from rating curve extended above 2,900 ft^3/s (82 m^3/s) on basis of contracted-opening measurement of peak flow; minimum, 21 ft^3/s (0.59 m^3/s) Aug. 27, 1963; minimum gage height, 2.75 ft (0.838 m) July 28, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft^3/s (28 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 9	Unknown	*2930	83.0	a10.32	3.146
Dec. 7	0700	1120	31.7	6.74	2.054
Apr. 5	0930	1160	32.9	6.78	2.067

a From high-water mark in well.

Minimum discharge, 22 ft^3/s (0.62 m^3/s) Aug. 8, gage height, 2.88 ft (0.878 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	98	130	132	80	72	77	90	103	77	49	27	34
2	68	114	114	80	73	75	90	103	68	50	27	33
3	64	107	102	84	74	73	94	102	64	45	29	32
4	56	100	94	88	80	92	124	109	60	44	31	38
5	53	94	90	87	95	109	705	105	58	43	27	33
6	51	90	91	84	85	146	312	103	61	41	28	32
7	58	88	568	87	78	136	205	100	74	40	25	46
8	314	85	312	81	76	114	172	100	60	38	24	146
9	1520	83	211	81	75	102	152	90	65	37	34	92
10	270	84	176	91	78	95	136	88	62	36	31	62
11	154	82	154	84	80	92	128	87	58	58	30	49
12	120	84	172	82	81	90	120	85	58	90	28	42
13	98	81	154	80	95	262	114	84	58	123	31	41
14	87	78	132	92	84	196	109	82	77	53	43	40
15	77	78	142	128	80	156	105	80	66	49	37	39
16	75	75	142	110	75	134	102	78	59	40	56	62
17	120	72	126	98	71	118	97	80	58	39	37	63
18	95	71	118	90	73	112	94	76	57	36	58	48
19	80	70	111	86	77	105	107	75	53	35	40	43
20	171	70	116	82	71	126	100	77	50	34	36	40
21	160	69	118	80	68	107	94	74	48	32	33	38
22	112	68	98	79	66	130	91	73	47	36	125	36
23	94	66	92	80	68	116	91	73	64	41	106	37
24	94	66	91	82	88	109	209	72	61	34	53	36
25	193	66	91	83	91	103	148	80	80	33	45	35
26	532	66	116	83	81	97	128	100	58	34	43	51
27	216	74	100	82	82	94	118	82	53	31	41	43
28	156	202	97	80	84	94	112	73	58	30	40	38
29	130	409	94	78	---	92	114	69	60	30	37	35
30	116	186	88	75	---	107	107	80	51	31	35	35
31	162	---	84	72	---	98	---	72	---	28	35	---
TOTAL	5594	3008	4326	2649	2201	3557	4368	2655	1823	1340	1272	1399
MEAN	180	100	140	85.5	78.6	115	146	85.6	60.8	43.2	41.0	46.6
MAX	1520	409	568	128	95	262	705	109	80	123	125	146
MIN	51	66	84	72	66	73	90	69	47	28	24	32
CFSM	2.13	1.18	1.66	1.01	.93	1.36	1.73	1.01	.72	.51	.49	.55
IN.	2.46	1.32	1.90	1.16	.97	1.56	1.92	1.17	.80	.59	.56	.62

CAL YR 1976 TOTAL 42015 MEAN 115 MAX 1520 MIN 32 CFSM 1.36 IN 18.47
WTR YR 1977 TOTAL 34192 MEAN 93.7 MAX 1520 MIN 24 CFSM 1.11 IN 15.03

02070000 NORTH MAYO RIVER NEAR SPENCER, VA

LOCATION.--Lat 36°34'05", long 79°59'15", Henry County, Hydrologic Unit 03010103, on left bank 800 ft (244 m) downstream from bridge on State Highway 629 at Moores Mill, 2.1 mi (3.4 km) downstream from Horse Pasture Creek, and 3.8 mi (6.1 km) southeast of Spencer.

DRAINAGE AREA.--108 mi^3 (280 km^2).

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 1303: 1929-32(M), 1934(M).

GAGE.--Water-stage recorder. Datum of gage is 730.94 ft (222.791 m) above mean sea level (levels by Corps of Engineers). Prior to Jan. 23, 1936, nonrecording gage at site 800 ft (244 m) upstream at datum 1.50 ft (0.457 m) higher. July 25 to Sept. 27, 1936, nonrecording gage at present site and datum.

REMARKS.--Records good except those for January and February and those for period of no gage-height record, Aug. 14 to Sept. 14, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--49 years, 125 ft^3/s (3.540 m^3/s), 15.72 in/yr (399 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,200 ft^3/s (487 m^3/s) Oct. 9, 1947, gage height, 15.80 ft (4.816 m), from rating curve extended above 7,200 ft^3/s (200 m^3/s) on basis of slope-area measurement at gage height 13.41 ft (4.087 m) and velocity-area study; minimum, 14 ft^3/s (0.40 m^3/s) Aug. 11, 1956; minimum gage height, 1.08 ft (0.329 m) Oct. 8, 1954.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,900 ft^3/s (82.1 m^3/s) at 1800 hours Oct. 9, gage height, 6.77 ft (2.063 m), no other peak above base of 1,400 ft^3/s (40 m^3/s); minimum, 21 ft^3/s (0.59 m^3/s) Feb. 9, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	156	150	150	78	82	80	83	78	85	47	32	38
2	76	120	127	76	80	78	82	78	74	47	32	37
3	85	110	114	74	82	76	85	80	66	45	33	35
4	66	107	103	78	83	80	112	91	62	43	38	40
5	59	97	99	87	91	103	875	85	61	41	33	37
6	55	93	95	91	88	156	310	87	59	40	32	35
7	55	89	802	91	85	168	186	80	65	40	31	60
8	355	85	388	83	82	122	156	85	58	39	30	140
9	2250	83	250	87	82	110	132	73	58	38	30	100
10	467	83	186	110	83	101	122	69	58	39	31	60
11	186	83	171	147	87	97	114	68	55	40	31	50
12	135	82	202	120	91	95	107	68	53	106	32	40
13	114	82	192	112	95	172	101	66	53	114	32	37
14	99	78	150	117	89	168	99	65	63	58	45	35
15	89	78	147	127	83	124	95	63	69	50	40	34
16	83	78	171	117	78	110	95	62	61	45	50	70
17	138	78	141	110	73	101	91	63	58	40	45	60
18	130	76	127	100	73	99	89	62	56	39	66	54
19	99	76	120	96	87	97	87	59	54	38	45	48
20	300	76	120	92	76	112	87	58	51	38	43	45
21	266	74	112	91	73	107	89	58	49	38	40	40
22	147	73	99	90	71	114	85	58	47	37	130	40
23	114	71	95	92	71	114	83	58	58	39	100	39
24	107	71	93	94	83	101	172	58	65	38	60	39
25	137	71	93	99	105	95	114	65	65	37	50	38
26	670	71	112	100	87	91	93	83	59	38	45	48
27	237	76	103	99	85	87	87	80	53	35	44	45
28	159	186	101	98	91	87	83	66	53	32	43	42
29	130	584	99	97	---	85	82	62	61	32	41	39
30	120	237	91	90	---	91	80	279	51	32	40	39
31	189	---	83	85	---	93	---	95	---	32	38	---
TOTAL	7273	3318	4936	3028	2336	3314	4076	2402	1780	1377	1382	1464
MEAN	235	111	159	97.7	83.4	107	136	77.5	59.3	44.4	44.6	48.8
MAX	2250	584	802	147	105	172	875	279	85	114	130	140
MIN	55	71	83	74	71	76	80	58	47	32	30	34
CFSM	2.18	1.03	1.47	.91	.77	.99	1.26	.72	.55	.41	.41	.45
IN.	2.51	1.14	1.70	1.04	.80	1.14	1.40	.83	.61	.47	.48	.50

CAL YR 1976 TOTAL 44636 MEAN 122 MAX 2250 MIN 30 CFSM 1.13 IN 15.37
WTR YR 1977 TOTAL 36686 MEAN 101 MAX 2250 MIN 30 CFSM .94 IN 12.64

02071900 PHILPOTT LAKE NEAR PHILPOTT, VA

LOCATION.--Lat 36°46'52", long 80°01'40", Henry County, Hydrologic Unit 03010103, at Philpott Dam on Smith River, 1.5 mi (2.4 km) west of Philpott, 12.0 mi (19.3 km) upstream from Reed Creek, and at mile 44.3 (71.3 km).

DRAINAGE AREA.--216 mi^2 (559 km^2).

PERIOD OF RECORD.--August 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Reservoir is formed by concrete dam. Spillway, with crest at elevation 985 ft (300.2 m), is ungated and 120 ft (40 m) long. Storage began in August 1950 during construction; initial filling started in December 1951; water in reservoir first reached rule-curve elevation in July 1953. Total capacity at maximum flood-control pool elevation, 998 ft (304.2 m), is 246,400 acre-ft (304 hm^3) of which 48,300 acre-ft (59.6 hm^3) is above the spillway crest; 34,100 acre-ft (42.0 hm^3) is controlled flood storage between elevations 974 ft (296.9 m), maximum power pool, and 985 ft (300.2 m); 110,000 acre-ft (136 hm^3) is available for power between elevations 920 ft (280.4 m), minimum power pool, and 974 ft (296.9 m); and 54,000 acre-ft (66.6 hm^3) is inactive and dead storage below elevation 920 ft (280.4 m). Usable capacity is 144,100 acre-ft (178 hm^3) between elevations 920 ft (280.4 m) and 985 ft (300.2 m). Figures given herein represent total contents. Reservoir is used for flood control, hydroelectric power, low-water regulation for pollution abatement and industrial water supply, and recreation.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 191,700 acre-ft (236 hm^3) June 22, 1972, elevation, 983.06 ft (299.637 m); minimum (after first filling to rule curve), 64,540 acre-ft (79.6 hm^3) Sept. 26, 1956, elevation, 927.59 ft (282.729 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 169,100 acre-ft (209 hm^3) Apr. 6, elevation, 975.75 ft (297.409 m); minimum, 132,100 acre-ft (163 hm^3) Sept. 30, elevation, 962.07 ft (293.239 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	967.86	146980	
Oct. 31	973.54	162620	+15640
Nov. 30	972.12	158540	-4080
Dec. 31	971.58	157020	-1520
CAL YR 1976			-4040
Jan. 31	972.21	158790	+1770
Feb. 28	972.22	158820	+30
Mar. 31	973.81	163430	+4610
Apr. 30	973.96	163880	+450
May 31	974.02	164060	+180
June 30	972.57	159800	-4260
July 31	969.61	151650	-8150
Aug. 31	965.57	140980	-10670
Sept. 30	962.07	132110	-8870
WTR YR 1977			-14870

02072000 SMITH RIVER NEAR PHILPOTT, VA

LOCATION.--Lat 36°46'50", long 80°01'30", Franklin County, Hydrologic Unit 03010103, on left bank 900 ft (270 m) downstream from Philpott Dam, 3.1 mi (5.0 km) west of Philpott, 11.6 mi (18.7 km) upstream from Reed Creek, and at mile 44.1 (71.0 km).

DRAINAGE AREA.--216 mi² (559 km²).

PERIOD OF RECORD.--August 1946 to current year.

REVISED RECORDS.--WSP 1553: 1953(M), 1955-56(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 804.27 ft (245.141 m) above mean sea level (Corps of Engineers bench mark). Prior to Oct. 8, 1952, at site 1.9 mi (3.1 km) downstream at different datum.

REMARKS.--Records good. Since August 1950, flow regulated by Philpott Lake (station 02071900) 0.2 mi (0.3 km) upstream. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--31 years, 278 ft³/s (7.873 m³/s), 17.48 in/yr (444 mm/yr), adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,000 ft³/s (481 m³/s) June 29, 1949, gage height, 20.3 ft (6.19 m), site and datum then in use, from rating curve extended above 9,700 ft³/s (270 m³/s) on basis of slope-area measurements at gage heights 18.2 ft (5.55 m) and 20.3 ft (6.19 m); minimum, 4.0 ft³/s (0.11 m³/s) Aug. 12, 1953, gage height, 1.50 ft (0.457 m); minimum daily, 24 ft³/s (0.68 m³/s) Dec. 16, 17, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,470 ft³/s (41.6 m³/s) Sept. 13, 30, gage height, 5.14 ft (1.567 m); minimum, 9.8 ft³/s (0.28 m³/s) Nov. 9, 10, Jan. 6, gage height, 1.82 ft (0.555 m); minimum daily, 43 ft³/s (1.22 m³/s) Dec. 25, 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	254	670	199	44	357	195	503	45	253	255	313	326
2	45	666	198	44	353	195	45	354	253	47	263	329
3	45	664	199	198	354	196	45	351	252	46	262	330
4	206	676	45	191	351	198	453	349	48	308	261	49
5	205	673	45	192	45	44	446	358	48	309	260	331
6	204	44	402	166	45	45	756	359	356	310	262	447
7	204	44	401	176	198	200	756	47	355	310	48	449
8	205	429	409	45	197	196	758	47	359	310	316	450
9	47	429	396	45	197	192	759	202	359	47	262	447
10	45	428	399	192	196	193	45	199	356	45	261	450
11	663	429	45	202	197	194	604	199	47	310	262	49
12	662	441	45	202	45	45	601	198	47	310	263	277
13	660	45	766	202	44	45	602	199	254	310	263	278
14	671	44	770	200	196	194	604	47	255	311	48	275
15	658	202	767	44	196	650	604	48	254	310	316	276
16	44	200	769	44	198	661	45	203	255	48	268	278
17	44	202	767	199	200	645	45	202	258	48	264	48
18	507	200	771	199	198	655	349	201	47	308	260	48
19	507	197	44	197	45	44	394	200	47	255	267	276
20	502	45	671	196	45	45	393	201	253	254	267	278
21	504	45	667	197	198	398	397	47	255	258	48	278
22	509	198	671	45	198	397	393	47	256	264	330	279
23	44	200	669	45	197	398	45	200	256	260	262	280
24	44	204	670	199	198	396	46	201	256	48	271	48
25	452	201	43	200	196	390	349	201	48	315	268	49
26	459	203	43	196	45	44	351	199	49	261	269	277
27	454	45	199	196	45	44	351	200	251	262	269	277
28	455	46	200	199	194	495	354	115	250	261	49	276
29	454	199	202	44	---	498	354	115	248	261	493	276
30	44	198	196	44	---	498	45	252	255	259	498	278
31	44	---	196	355	---	499	---	252	---	48	498	---
TOTAL	9850	8267	11864	4698	4930	8887	11542	5838	6480	6948	8241	8009
MEAN	318	276	383	152	176	287	385	188	216	224	266	267
MAX	671	676	771	355	357	661	759	359	359	315	498	450
MIN	44	44	43	44	44	44	45	45	47	45	48	48
(*)	+254	-69	-25	+29	+1	+75	+8	+3	-72	-132	-174	-149
MEAN‡	572	207	358	181	177	362	393	191	144	92	92	118
CFSM‡	2.65	.96	1.66	.84	.82	1.68	1.82	.88	.67	.43	.43	.55
IN‡	3.05	1.07	1.91	.97	.85	1.93	2.03	1.02	.74	.49	.49	.61

CAL YR 1976 TOTAL 100355 MEAN 274 MAX 771 MIN 42 MEAN‡ 268 CFSM‡ 1.24 IN‡ 16.89
WTR YR 1977 TOTAL 95554 MEAN 262 MAX 771 MIN 43 MEAN‡ 241 CFSM‡ 1.12 IN‡ 15.15

* Change in contents, equivalent in cubic feet per second, in Philpott Lake; furnished by Corps of Engineers.
‡ Adjusted for change in contents.

02072500 SMITH RIVER AT BASSETT, VA

LOCATION.--Lat 36°46'12", long 80°00'04", Henry County, Hydrologic Unit 03010103, on left bank 25 ft (8 m) upstream from bridge on State Highway 666 at north edge of North Bassett, 1.0 mi (1.6 km) northwest of Bassett, 3.0 mi (4.8 km) downstream from Town Creek, 5.6 mi (9.0 km) upstream from Reed Creek, 6.2 mi (10.0 km) downstream from Philpott Dam, and at mile 38.1 (61.3 km).

DRAINAGE AREA.--259 mi² (671 km²).

PERIOD OF RECORD.--April 1939 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 753.09 ft (229.542 m) above mean sea level (levels by Corps of Engineers).

REMARKS.--Records good. Since August 1950, flow regulated by Philpott Lake (station 02071900) 6.2 mi (10.0 km) upstream. Gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--38 years, 329 ft³/s (9.317 m³/s), 17.25 in/yr (438 mm/yr), adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,600 ft³/s (753 m³/s) Aug. 14, 1940, gage height, 18.28 ft (5.572 m); minimum, 19 ft³/s (0.54 m³/s) July 19, 1956; minimum daily, 44 ft³/s (1.25 m³/s) Aug. 23, 1964; minimum gage height, 1.06 ft (0.323 m) Sept. 18, 26, 1953.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 19, 1937, reached a stage of about 22.9 ft (6.98 m), from information by local residents, discharge, 38,000 ft³/s (1,100 m³/s), from rating curve extended above 23,000 ft³/s (650 m³/s) on basis of backwater studies and records for station at Martinsville.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,240 ft³/s (91.8 m³/s) Oct. 9, gage height, 5.99 ft (1.826 m); minimum, 44 ft³/s (1.25 m³/s) Aug. 23, gage height, 1.39 ft (0.424 m); minimum daily, 57 ft³/s (1.61 m³/s) July 10, 24, 31, Aug. 7, Sept. 4, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	301	722	246	77	383	224	535	73	293	269	315	331
2	77	712	241	182	379	223	40	363	275	62	267	328
3	91	709	237	228	380	222	75	379	271	60	271	328
4	226	716	81	227	381	233	541	386	66	317	268	57
5	224	709	77	227	79	81	1020	388	64	318	272	327
6	224	80	437	197	106	112	856	385	372	319	271	439
7	230	76	863	207	277	256	864	104	372	318	57	455
8	517	466	541	78	228	236	823	75	373	318	318	481
9	1270	480	484	88	224	230	815	223	375	58	278	467
10	134	479	467	234	226	228	103	221	374	57	268	457
11	701	478	104	230	229	227	651	224	65	327	270	62
12	697	496	133	230	75	74	649	222	64	368	278	280
13	694	88	837	231	77	238	649	223	265	327	280	282
14	701	74	831	234	228	266	650	69	277	322	65	274
15	688	230	830	84	226	708	650	68	272	320	327	279
16	81	231	831	77	225	704	81	222	269	61	272	291
17	108	230	823	239	225	687	76	221	269	59	272	65
18	533	230	822	226	222	696	418	220	65	315	275	61
19	534	227	96	224	72	79	435	219	62	263	273	278
20	629	76	723	223	71	112	430	219	262	264	272	279
21	592	72	720	224	222	445	433	66	265	266	59	279
22	561	222	718	78	222	460	427	66	268	271	347	274
23	91	226	718	135	223	455	95	217	289	268	274	280
24	84	229	715	220	233	445	114	219	275	57	275	58
25	695	228	82	224	229	437	371	224	69	319	272	57
26	788	227	84	226	73	89	385	229	66	267	273	285
27	535	76	235	225	74	76	383	220	265	265	272	280
28	512	137	240	229	225	527	383	134	269	264	58	279
29	506	389	239	81	---	539	385	132	275	264	489	279
30	92	271	233	154	---	546	95	280	271	265	493	280
31	113	---	234	392	---	538	---	272	---	57	495	---
TOTAL	13229	9586	1392	5931	5814	10385	13482	6563	7017	7285	8476	8161
MEAN	427	320	445	191	208	335	449	212	234	235	273	273
MAX	1270	722	863	392	383	704	1020	388	375	368	495	481
MIN	77	72	77	77	71	74	75	66	62	57	57	57
(*)	+254	-69	-25	+29	+1	+75	+8	+3	-72	-132	-174	-149
MEAN‡	681	251	424	220	209	410	457	215	162	103	99	124
CFSM‡	2.63	.97	1.64	.85	.81	1.58	1.76	.83	.63	.40	.38	.48
IN‡	3.03	1.08	1.89	.98	.84	[illegible] 83	1.97	.96	.70	.46	.44	.53

CAL YR 1976 TOTAL 118066 MEAN 323 MAX 1270 MIN 6 MEAN‡ 317 CFSM‡ 1.22 IN‡ 16.66
WTR YR 1977 TOTAL 109871 MEAN 301 MAX 1270 MIN 7 MEAN‡ 280 CFSM‡ 1.08 IN‡ 14.68

* Change in contents, equivalent in cubic feet per second, in Philpott Lake; furnished by Corps of Engineers.
‡ Adjusted for change in contents.

02073000 SMITH RIVER AT MARTINSVILLE, VA

LOCATION.--Lat 36°39'40", long 79°52'51", Henry County, Hydrologic Unit 03010103, on right bank at south edge of Martinsville, 800 ft (244 m) downstream from bridge on U.S. Highways 58 and 220, and 5.0 mi (8.0 km) downstream from Beaver Creek.

DRAINAGE AREA.--380 mi² (984 km²).

PERIOD OF RECORD.--August 1929 to current year.

REVISED RECORDS.--WSP 1032: 1933-35(M), 1936-39, 1940-41(P). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 657.22 ft (200.321 m) above mean sea level.

REMARKS.--Records good. Flow regulated since August 1950 by Philpott Lake (station 02071900) 19.6 mi (31.5 km) upstream. Some additional regulation by powerplant 1,000 ft (305 m) above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--48 years, 451 ft³/s (12.77 m³/s), 16.12 in/yr (409 mm/yr), adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,000 ft³/s (1,100 m³/s) Oct. 19, 1937, gage height, 21.50 ft (6.553 m), from rating curve extended above 17,000 ft³/s (480 m³/s) on basis of computations of flow over dam at gage heights 16.76 ft (5.108 m) and 21.50 ft (6.553 m); minimum, 3.8 ft³/s (0.11 m³/s) Mar. 19, 1955; minimum daily, 19 ft³/s (0.54 m³/s) Oct. 6, 1935; minimum gage height, 0.69 ft (0.210 m) Sept. 8, 1969.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,740 ft³/s (248 m³/s) Oct. 9, gage height, 8.84 ft (2.694 m); minimum, 11 ft³/s (0.31 m³/s) Nov. 17, gage height, 1.02 ft (0.311 m); minimum daily, 51 ft³/s (1.44 m³/s) July 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	538	720	402	204	465	296	597	113	388	331	280	366
2	297	852	379	124	433	290	322	283	358	164	326	384
3	243	846	339	230	428	280	110	448	344	93	323	375
4	263	848	252	354	453	327	529	492	176	287	314	209
5	283	834	162	311	261	170	1840	496	95	421	320	255
6	282	374	447	271	82	251	1140	522	388	372	318	522
7	290	153	1810	258	277	468	1090	379	455	369	198	531
8	672	411	1030	163	281	349	987	148	447	367	253	673
9	3860	563	769	113	328	328	957	314	449	209	336	611
10	414	574	669	274	271	310	450	257	440	51	315	553
11	643	578	370	276	316	320	638	292	261	356	311	171
12	817	606	348	297	124	129	767	304	66	639	320	310
13	801	394	813	307	142	452	765	285	300	425	324	336
14	783	103	966	309	337	511	759	214	417	364	203	324
15	770	248	962	249	305	604	760	81	350	358	280	326
16	410	250	962	140	300	783	339	220	340	211	339	424
17	342	315	933	194	263	756	133	319	342	64	320	211
18	441	383	918	281	287	758	428	304	185	308	342	78
19	789	298	431	306	147	365	554	271	89	245	325	325
20	1110	203	680	284	94	204	535	303	248	376	316	310
21	970	138	815	289	311	479	538	124	362	302	197	318
22	756	200	791	261	274	590	544	116	315	317	354	321
23	352	292	798	86	272	572	314	252	394	272	375	323
24	189	299	788	213	344	535	333	275	387	201	331	158
25	797	292	283	279	340	526	374	302	208	261	323	61
26	1690	318	182	304	122	236	498	361	81	328	326	340
27	847	290	246	281	137	138	489	290	299	306	321	332
28	667	394	315	285	342	470	480	209	335	303	199	288
29	695	1120	318	219	---	606	478	181	304	307	467	363
30	381	600	300	91	---	629	365	302	377	305	559	322
31	313	---	316	366	---	623	---	391	---	200	567	---
TOTAL	21705	13496	18794	7619	7736	13355	18113	8848	9200	9112	10082	10120
MEAN	700	450	606	246	276	431	604	285	307	294	325	337
MAX	3860	1120	1810	366	465	783	1840	522	455	639	567	673
MIN	189	103	162	86	82	129	110	81	66	51	197	61
(*)	+254	-69	-25	+29	+1	+75	+8	+3	-72	-132	-174	-149
MEAN‡	954	381	581	275	277	506	612	288	235	162	151	188
CFSM‡	2.51	1.00	1.53	.72	.73	1.33	1.61	.76	.62	.43	.40	.49
IN‡	2.90	1.12	1.76	.83	.76	1.53	1.80	.88	.69	.49	.46	.55

CAL YR 1976 TOTAL 165387 MEAN 452 MAX 3860 MIN 38 MEAN‡ 446 CFSM‡ 1.17 IN‡ 15.98
WTR YR 1977 TOTAL 148180 MEAN 406 MAX 3860 MIN 51 MEAN‡ 385 CFSM‡ 1.01 IN‡ 13.76

* Change in contents, equivalent in cubic feet per second, in Philpott Lake; furnished by Corps of Engineers.
‡ Adjusted for change in contents.

02074000 SMITH RIVER AT EDEN, NC

LOCATION.--Lat 36°31'31", long 79°45'57", Rockingham County, Hydrologic Unit 03010103, on right bank at Eden, 0.3 mi (0.5 km) downstream from bridge on State Highway 14, 0.8 mi (1.3 km) upstream from bridge on Secondary Road 1714, 1.2 mi (1.9 km) south of Virginia-North Carolina State line, 1.3 mi (2.1 km) downstream from Stuart Creek, and 3.9 mi (6.3 km) upstream from mouth.

DRAINAGE AREA.--538 mi² (1,393 km²).

PERIOD OF RECORD.--October 1939 to current year. Prior to October 1970, published as "at Spray."

REVISED RECORDS.--WSP 1433: 1946.

GAGE.--Water-stage recorder. Datum of gage is 539.56 ft (164.458 m) above mean sea level.

REMARKS.--Records good. Flow regulated since August 1950 by Philpott Lake (station 02071900) 40 mi (64 km) upstream, usable capacity, 6,325,000,000 ft³ (179.1 hm³). Some additional regulation by hydroelectric plant at Martinsville, Va., 18 mi (29 km) upstream.

AVERAGE DISCHARGE.--38 years, 608 ft³/s (17.22 m³/s), 15.35 in/yr (390 mm/yr), adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,600 ft³/s (1,290 m³/s) Aug. 15, 1940, gage height, 19.28 ft (5.877 m), from rating curve extended above 12,000 ft³/s (340 m³/s) on basis of computation of peak flow over dam 1.5 mi (2.4 km) downstream; minimum, 38 ft³/s (1.08 m³/s) Aug. 7, 1967; minimum daily, 46 ft³/s (1.30 m³/s) Aug. 14, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,600 ft³/s (300 m³/s) Oct. 9, gage height, 10.29 ft (3.136 m); minimum, 70 ft³/s (1.98 m³/s) July 10, Sept. 25, 26, gage height, 1.39 ft (0.424 m); minimum daily, 80 ft³/s (2.27 m³/s) Sept. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	765	615	765	381	440	415	726	154	433	351	146	539
2	511	962	602	149	480	415	690	294	443	393	347	363
3	309	938	527	336	490	392	177	540	388	90	316	366
4	287	943	448	396	550	409	466	555	387	121	315	355
5	341	928	233	397	600	462	3410	554	105	388	309	139
6	327	842	396	401	145	370	1550	620	235	372	315	313
7	322	189	3200	375	304	745	1390	578	482	376	293	466
8	604	346	1690	363	365	538	1200	222	470	369	148	680
9	6330	638	1190	168	365	499	1110	306	478	410	322	717
10	1030	652	936	307	381	456	1020	366	483	112	313	589
11	603	646	809	400	415	438	351	350	516	150	306	525
12	968	657	536	430	381	396	879	353	118	636	296	136
13	883	672	816	430	218	398	856	351	151	577	326	335
14	872	156	1170	430	392	710	840	363	465	430	301	337
15	867	299	1150	420	415	905	845	124	438	403	150	331
16	820	337	1190	214	415	946	639	168	391	455	343	436
17	359	425	1120	400	386	902	176	380	382	89	314	501
18	441	412	1080	440	355	888	342	364	415	112	356	133
19	822	406	1010	450	392	867	621	334	101	363	334	144
20	2010	299	388	450	152	247	611	322	155	320	316	358
21	1510	224	973	450	318	512	617	278	350	314	294	340
22	987	294	913	400	370	759	618	139	337	311	162	336
23	748	362	924	179	370	774	611	238	398	310	463	336
24	302	373	907	347	432	717	300	315	428	302	339	396
25	617	389	802	440	518	676	454	352	457	152	327	80
26	2610	365	285	450	403	614	596	409	122	330	319	175
27	1120	399	377	440	214	200	565	401	161	304	313	377
28	856	275	436	408	415	409	560	363	359	292	297	352
29	814	2140	434	370	---	731	573	153	386	298	145	335
30	713	1040	418	142	---	760	564	342	359	307	493	335
31	431	---	414	350	---	761	---	527	---	277	535	---
TOTAL	30119	17223	26130	11313	10681	17913	23565	10815	10385	9714	9555	10865
MEAN	972	574	843	365	381	578	786	349	346	313	308	362
MAX	6330	2140	3200	450	600	946	3410	620	516	636	535	717
MIN	287	156	233	142	145	200	176	124	101	89	145	80
(*)	+254	-69	-25	+29	+1	+75	+8	+3	-72	-132	-174	-149

CAL YR 1976 TOTAL 213736 MEAN 584 MAX 6330 MIN 68 MEAN‡ 578 CFSM‡ 1.07 IN‡ 14.56
WTR YR 1977 TOTAL 188258 MEAN 516 MAX 6330 MIN 80 MEAN‡ 495 CFSM‡ .92 IN‡ 12.49

* Change in contents, equivalent in cubic feet per second, in Philpott Lake; furnished by Corps of Engineers.
‡ Adjusted for change in contents.

02074500 SANDY RIVER NEAR DANVILLE, VA

LOCATION.--Lat 36°37'10", long 79°30'16", Pittsylvania County, Hydrologic Unit 03010103, on right bank 200 ft (61 m) downstream from Hickory Forest Creek, 400 ft (122 m) upstream from bridge on State Highway 863 between Callahans Store and Mount Cross, 5.5 mi (8.8 km) northwest of western corporate limits of Danville, and 5.8 mi (9.3 km) upstream from mouth.

DRAINAGE AREA.--112 mi^2 (290 km^2).

PERIOD OF RECORD.--October 1929 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1930-41. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 460.38 ft (140.324 m) above mean sea level. Prior to June 26, 1942, at site 1,200 ft (366 m) downstream at datum 5.57 ft (1.698 m) lower.

REMARKS.--Records good except those for January, which are fair. Diurnal fluctuation at low flow caused by small mill above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--48 years, 104 ft^3/s (2.945 m^3/s), 12.61 in/yr (320 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,000 ft^3/s (651 m^3/s) Aug. 14, 1940, gage height, 14.8 ft (4.51 m), present datum, from floodmarks, from rating curve extended above 11,000 ft^3/s (310 m^3/s); minimum, 3 ft^3/s (0.08 m^3/s) Sept. 29, 1930, gage height, 0.40 ft (0.122 m), site and datum then in use; minimum daily, 8 ft^3/s (0.23 m^3/s) Aug. 29, 31, Sept. 1, 2, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft^3/s (42 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 9	1000	*2580	73.1	5.47	1.667	Dec. 7	1300	1900	53.8	4.85	1.478
Oct. 20	1600	2510	71.1	5.39	1.643	July 12	2200	2200	62.3	5.17	1.576

Minimum daily discharge, 21 ft^3/s (0.59 m^3/s) Sept. 2-6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	109	116	71	69	84	69	58	66	40	26	22
2	61	90	96	71	70	76	67	58	58	43	39	21
3	45	82	84	73	73	73	71	58	50	39	34	21
4	37	76	76	75	83	74	96	60	46	36	40	21
5	33	73	75	73	88	84	834	85	45	34	46	21
6	33	67	71	73	84	130	256	112	48	34	37	21
7	33	66	972	74	80	150	143	94	51	37	24	26
8	43	64	359	71	78	107	116	112	44	42	26	76
9	1170	61	213	71	80	96	101	64	46	39	26	80
10	170	62	148	74	82	88	94	58	45	41	22	48
11	92	61	135	71	80	98	88	56	42	73	24	33
12	64	61	200	72	82	82	82	55	42	398	23	28
13	50	61	182	72	94	96	78	54	42	330	22	27
14	54	60	125	74	86	94	75	51	67	54	24	28
15	50	61	123	90	76	82	75	50	60	42	22	26
16	50	60	143	77	69	78	69	49	48	37	23	45
17	78	58	118	70	64	73	67	50	45	33	25	43
18	73	58	109	72	66	73	66	50	44	36	45	39
19	54	56	97	70	78	71	67	48	42	36	32	32
20	1190	56	99	70	69	97	80	46	40	30	26	29
21	455	55	105	70	64	94	114	44	39	34	25	28
22	145	55	92	71	62	112	76	44	37	34	27	27
23	99	54	82	74	66	112	71	44	52	37	42	27
24	90	54	82	80	92	94	82	45	54	33	28	27
25	156	54	88	82	109	84	78	48	51	36	27	27
26	497	54	107	90	86	80	67	46	49	40	25	39
27	143	62	94	74	90	74	64	64	42	31	24	37
28	107	101	86	78	99	75	62	52	39	25	24	29
29	92	605	84	75	---	75	62	51	36	25	24	28
30	84	195	76	72	---	78	60	123	34	24	23	28
31	137	---	75	70	---	76	---	67	---	24	22	---
TOTAL	5449	2631	4512	2302	2219	2760	3330	1896	1404	1799	877	984
MEAN	176	87.7	146	74.3	79.3	89.0	111	61.2	46.8	58.0	28.3	32.8
MAX	1190	605	972	90	109	150	834	123	67	398	46	80
MIN	33	54	71	70	62	71	60	44	34	24	22	21
CFSM	1.57	.78	1.30	.66	.71	.79	.99	.55	.42	.52	.25	.29
IN.	1.81	.87	1.50	.76	.74	.92	1.11	.63	.47	.60	.29	.33

CAL YR 1976 TOTAL 34176 MEAN 93.4 MAX 1190 MIN 25 CFSM .83 IN 11.35
WTR YR 1977 TOTAL 30163 MEAN 82.6 MAX 1190 MIN 21 CFSM .74 IN 10.02

02075000 DAN RIVER AT DANVILLE, VA

LOCATION.--Lat 36°35'15", long 79°22'55", Danville City, Hydrologic Unit 03010104, on left bank 50 ft (20 m) downstream from Southern Railway bridge, 1,000 ft (300 m) upstream from Fall Creek, and at mile 62.7 (100.9 km).

DRAINAGE AREA.--2,050 mi² (5,310 km²), approximately.

PERIOD OF RECORD.--August 1934 to current year. Gage-height records collected in this vicinity 1890-1934, at same site 1934-49, and at Main Street Bridge, 0.25 mi (0.40 km) upstream 1949-68, are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 972: 1936.

GAGE.--Water-stage recorder. Datum of gage is 379.29 ft (115.608 m) above mean sea level.

REMARKS.--Records good. Diurnal fluctuation caused by cotton mills above station. Since August 1950, flow regulated by Philpott Lake (station 02071900) 74.7 mi (120.2 km) upstream. Gage-height telemeters at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--43 years, 2,302 ft³/s (65.19 m³/s), 15.25 in/yr (387 mm/yr), adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 75,000 ft³/s (2,120 m³/s) Aug. 15, 1940, gage height, 20.96 ft (6.389 m); maximum gage height, 21.34 ft (6.504 m) June 22, 1972, backwater from debris; minimum discharge, 11 ft³/s (0.31 m³/s) Sept. 5, 1966, gage height, 1.18 ft (0.360 m); minimum daily, 110 ft³/s (3.12 m³/s) Sept. 5, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 22,600 ft³/s (640 m³/s) Oct. 10, gage height, 11.79 ft (3.59: m); minimum, 180 ft³/s (5.10 m³/s) Aug. 3, gage height, 1.52 ft (0.463 m); minimum daily, 225 ft³/s (9.18 m³/s) Aug. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1200	2320	3610	1610	1230	2470	1870	1310	1370	920	496	802
2	1740	2630	2570	1160	1320	2010	1710	960	1160	853	225	677
3	1300	2350	2120	1090	1410	1860	1510	1130	1080	816	533	667
4	1010	2210	1800	1510	1550	1730	1380	1410	1160	518	499	667
5	827	2120	1510	1610	1920	1890	8390	1420	930	556	556	634
6	821	2010	1240	1520	1460	2390	13800	1550	710	798	474	455
7	817	1300	8390	1540	853	3730	5360	1480	971	710	446	797
8	874	971	12200	1470	1160	3290	3880	1470	1080	771	453	2010
9	9660	1200	6910	1310	1130	2500	3240	1110	1050	753	324	3160
10	19200	1410	4540	1290	1450	2130	2880	1050	1020	693	623	2120
11	4630	1480	3680	1510	1500	1960	2060	1040	1000	834	665	1350
12	2980	1460	3420	1400	1670	1890	2160	1080	930	1030	627	847
13	2380	1460	3780	1470	1570	1710	2180	1060	556	1790	608	695
14	2120	1250	3830	1640	1890	2390	2120	1020	900	1150	591	753
15	1970	693	3450	2120	2040	2640	2070	1010	1180	871	683	716
16	1760	1040	3990	2320	1820	2500	2010	816	1120	745	531	776
17	1420	971	4060	1730	1590	2320	1570	930	981	650	721	1060
18	1510	1120	3490	1350	1380	2190	1200	1080	981	367	756	1000
19	1760	1060	3120	1260	1430	2180	1460	1060	881	571	768	696
20	6140	1010	2100	1670	1420	1750	1670	1030	602	526	755	693
21	4950	844	2930	1410	1250	1570	1730	1020	659	564	712	732
22	4060	762	3130	1410	1370	2070	1610	910	780	518	624	717
23	2680	920	2750	1370	1410	2350	1570	736	844	518	727	685
24	1720	834	2700	920	1590	2220	1420	853	920	503	880	692
25	1590	991	2470	1260	2390	1930	1650	1010	1080	541	437	656
26	4270	960	2030	1420	2470	1860	1730	1310	1150	399	710	439
27	4530	1040	2300	1400	1860	1460	1520	1370	789	503	721	622
28	3430	1140	2100	1370	2270	1240	1470	1300	807	460	642	742
29	2470	5670	1870	1310	---	1600	1460	1140	871	446	593	691
30	2150	7250	1720	1080	---	1790	1400	963	910	426	609	686
31	1970	---	1480	602	---	1890	---	1750	---	474	794	---
TOTAL	105941	50476	105610	44052	44323	65530	78080	35355	28472	21274	19162	27253
MEAN	3417	1683	3407	1421	1583	2114	2603	1140	949	686	618	908
MAX	19200	7250	12200	2320	2470	3730	13800	1750	1370	1790	880	3160
MIN	817	693	1240	602	853	1240	1200	736	556	367	225	439
(*)	+254	-69	-25	+29	+1	+75	+8	+3	-72	-132	-174	-149
MEAN‡	3671	1614	3382	1450	1584	2189	2611	1143	877	554	444	759
CFSM‡	1.79	.79	1.65	.71	.77	1.07	1.27	.56	.43	.27	.22	.37
IN‡	2.07	.88	1.90	.82	.80	1.23	1.42	.64	.48	.31	.25	.41

CAL YR 1976 TOTAL 695970 MEAN 1902 MAX 19200 MIN 335 MEAN‡ 1896 CFSM‡ .92 IN‡ 12.59
WTR YR 1977 TOTAL 625528 MEAN 1714 MAX 19200 MIN 225 MEAN‡ 1693 CFSM‡ .83 IN‡ 11.21

* Change in contents, equivalent in cubic feet per second, in Philpott Lake, furnished by Corps of Engineers.
‡ Adjusted for change in contents.

02075500 DAN RIVER AT PACES, VA

LOCATION.--Lat 36°38'32", long 79°05'23", Halifax County, Hydrologic Unit 03010104, on right bank 100 ft (30 m) upstream from bridge on State Highway 658, 0.5 mi (0.8 km) southeast of Paces, 0.5 mi (0.8 km) upstream from Big Toby Creek, 2.7 mi (4.3 km) upstream from Birch Creek, and at mile 36.0 (57.9 km).

DRAINAGE AREA.--2,550 mi² (6,600 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 322.48 ft (98.292 m) above mean sea level.

REMARKS.--Records good. Diurnal fluctuation caused by cotton mills at Danville. Since August 1950, flow regulated by Philpott Lake (station 02071900) 101.4 mi (163.2 km) upstream.

AVERAGE DISCHARGE.--26 years (water years 1952-77), 2,733 ft³/s (77.40 m³/s), 14.55 in/yr (370 mm/yr), adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 64,800 ft³/s (1,840 m³/s) June 23, 1972, gage height, 33.15 ft (10.104 m), from rating curve extended above 32,000 ft³/s (910 m³/s); minimum, 193 ft³/s (5.47 m³/s) Sept. 4, 1956, gage height, 1.71 ft (0.521 m); minimum daily, 244 ft³/s (6.91 m³/s) Sept. 4, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 16, 1940, reached a stage of 32.3 ft (9.85 m), from floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,100 ft³/s (513 m³/s) Oct. 11, gage height, 19.69 ft (6.002 m); minimum, 224 ft³/s (6.34 m³/s) Aug. 4, gage height, 1.81 ft (0.552 m); minimum daily, 448 ft³/s (12.7 m³/s) July 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1210	2490	4530	1890	1180	2670	2260	1690	1770	950	489	787
2	1920	2690	2990	1700	1530	2290	2130	1340	1360	963	470	799
3	1930	2620	2420	1310	1590	2020	2110	1280	1310	924	494	634
4	1440	2460	2110	1720	1700	1930	1850	1650	1190	701	450	623
5	1170	2350	1900	1840	1970	2000	5010	1910	1140	532	467	614
6	1000	2250	1580	1050	1920	2630	15000	2050	806	690	623	523
7	995	2120	3970	1050	1390	4230	9670	1890	813	811	545	495
8	1050	1390	13900	1860	1190	4640	4930	2100	1160	753	530	1740
9	4710	1350	9160	1780	1380	3370	3990	1620	1240	787	500	4510
10	16100	1590	5440	1650	1470	2840	3520	1410	1140	750	472	3910
11	12300	1690	3980	2170	1670	2550	3140	1330	1160	1020	577	2280
12	3440	1670	3860	2100	1790	2400	2380	1270	1120	973	484	1580
13	2860	1610	4140	1770	1940	2380	2710	1260	832	1770	574	930
14	2460	1690	3920	1950	1990	2420	2610	1240	758	1690	559	892
15	2260	1240	3580	2490	2170	3220	2530	1210	1330	1380	467	863
16	2090	1130	3900	2960	2010	2740	2500	1050	1360	970	712	838
17	2090	1330	4230	2320	1830	2810	2420	920	1210	913	617	985
18	1470	1360	3690	1830	1630	2610	1680	1150	1250	598	868	1340
19	1680	1310	3260	1700	1530	2530	1670	1180	1210	448	817	1010
20	3250	1310	2940	1830	1640	2520	1970	1160	868	625	777	752
21	10600	1250	2550	1840	1500	1960	2150	1110	703	581	869	830
22	5460	1060	3210	1760	1420	2390	2080	1120	806	665	717	810
23	3300	1030	2900	1710	1500	2900	1980	853	925	578	616	790
24	2590	1150	2770	1490	1640	2870	1950	847	1000	589	898	753
25	1990	1160	2570	1420	2350	2520	1680	1170	1100	599	1040	686
26	3960	1210	2650	1720	2610	2310	2220	1530	1540	543	814	598
27	7410	1250	2580	1740	2300	2170	2080	1720	1250	520	714	584
28	4120	1350	2570	1740	2330	1640	1810	1550	889	552	699	766
29	2990	2690	2310	1660	---	1690	1810	1370	990	518	618	828
30	2570	7470	2120	1470	---	2130	1780	1070	1010	491	510	760
31	2590	---	1950	1160	---	2230	---	1410	---	499	482	---
TOTAL	113805	55270	113680	56270	49170	79610	93540	42460	33258	24415	20059	33520
MEAN	3645	1842	3667	1815	1756	2568	3118	1370	1109	788	647	1118
MAX	16100	7470	13900	2960	2610	4640	15000	2100	1770	1770	1040	4510
MIN	995	1030	1580	1160	1180	1640	1670	847	703	448	450	495
(*)	+254	-69	-25	+29	+1	+75	+8	+3	-72	-132	-174	-149
MEAN‡	3899	1773	3642	1844	1757	2643	3126	1373	1037	656	473	969
CFSM‡	1.53	.70	1.43	.72	.69	1.04	1.23	.54	.41	.26	.19	.38
IN‡	1.76	.78	1.65	.83	.72	1.20	1.37	.62	.45	.30	.21	.42

CAL YR 1976 TOTAL 839870 MEAN 2295 MAX 16100 MIN 449 MEAN‡ 2289 CFSM‡ .90 IN‡ 12.22
WTR YR 1977 TOTAL 714273 MEAN 1957 MAX 16100 MIN 448 MEAN‡ 1936 CFSM‡ .76 IN‡ 10.31

* Change in contents, equivalent in cubic feet per second, in Philpott Lake; furnished by Corps of Engineers.
‡ Adjusted for change in contents.

02075500 DAN RIVER AT PACES, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1954 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1954 to September 1956.
WATER TEMPERATURES: January 1954 to September 1956.
SUSPENDED-SEDIMENT DISCHARGE: January 1954 to current year.

REMARKS.--Daily sediment records based on once-weekly sediment samples and water-discharge hydrograph.

SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	70	224	55	370	130	1590	30	153	20	66	57	411
2	155	604	60	436	88	710	27	124	24	90	42	260
3	140	730	60	424	73	477	25	88	25	107	40	218
4	77	299	54	359	64	385	30	139	25	115	36	188
5	60	190	40	256	50	298	28	139	36	191	35	169
6	56	146	36	219	45	192	31	155	35	181	80	568
7	50	136	30	172	210	2290	25	125	30	113	125	1430
8	65	170	24	99	460	17300	25	126	26	77	144	1800
9	450	5720	25	91	230	5690	23	111	25	93	100	910
10	1300	60000	24	129	166	2440	20	89	20	111	55	422
11	492	15400	30	137	92	909	25	146	30	135	45	319
12	109	929	25	113	75	782	22	125	35	169	40	250
13	74	571	22	96	90	1010	19	91	66	241	40	257
14	65	432	26	110	85	980	18	86	45	262	44	287
15	61	366	18	69	80	773	24	161	51	290	81	706
16	85	367	18	55	88	927	29	232	45	244	50	370
17	60	339	26	66	95	1100	25	157	34	168	56	410
18	56	216	25	92	90	897	22	109	30	132	50	352
19	95	249	25	68	86	757	20	92	35	145	60	273
20	270	2370	20	71	75	695	25	126	34	151	41	279
21	620	17700	20	67	60	413	26	110	35	142	29	153
22	264	3030	16	46	64	555	20	95	38	146	36	232
23	104	962	15	42	55	431	22	102	35	142	50	301
24	86	601	15	47	45	337	20	80	60	266	42	325
25	75	603	15	47	33	299	22	84	76	482	38	254
26	310	3310	18	59	37	285	23	107	60	423	35	219
27	370	7400	20	67	31	216	25	117	51	317	30	176
28	110	1220	23	86	35	263	25	117	45	283	27	120
29	72	581	98	712	29	141	23	103	---	---	25	114
30	63	437	255	5140	30	172	21	83	---	---	32	173
31	56	456	---	---	25	132	17	53	---	---	34	205
TOTAL	---	127089	---	9754	---	43174	---	3630	---	5270	---	12263

02075500 DAN RIVER AT PACES, VA--Continued

SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	36	183	41	107	56	268	54	140	29	48	45	96
2	36	173	34	123	42	154	50	130	27	34	50	108
3	33	171	36	126	30	106	48	120	34	45	47	80
4	33	165	76	312	25	80	33	62	33	36	45	77
5	460	6220	80	413	23	71	23	33	44	67	40	64
6	1100	44600	100	553	15	33	30	56	46	77	34	48
7	544	14100	90	450	17	37	35	77	43	63	30	40
8	218	2800	120	840	44	138	34	69	40	57	90	423
9	148	1770	96	411	50	167	30	66	40	54	455	3110
10	110	1050	73	274	49	193	28	61	36	46	190	2010
11	93	763	56	201	45	161	38	105	43	67	68	619
12	86	611	50	171	40	139	35	92	43	70	48	205
13	75	569	40	136	36	91	88	411	45	70	25	63
14	78	493	42	141	33	68	75	342	45	68	28	48
15	62	426	40	131	110	395	50	196	44	65	28	47
16	60	405	37	105	105	386	39	103	50	96	28	45
17	62	405	32	80	90	296	32	74	45	75	25	44
18	56	254	40	126	112	378	25	40	49	112	43	156
19	50	225	44	140	120	392	22	27	46	101	35	95
20	56	290	40	125	64	150	15	50	43	90	32	65
21	43	368	38	109	55	106	30	67	44	105	40	90
22	55	304	40	121	50	128	30	54	45	87	40	87
23	51	267	30	60	75	107	30	47	40	67	45	96
24	44	253	25	57	80	216	31	49	45	109	43	87
25	43	195	30	95	40	238	30	49	55	154	47	102
26	50	300	35	165	112	444	27	40	48	105	32	52
27	44	259	34	150	85	247	25	36	45	87	23	31
28	45	220	29	121	50	120	25	37	47	89	37	77
29	45	220	24	80	53	142	25	35	43	72	35	78
30	44	211	25	72	60	156	20	27	36	50	30	60
31	---	---	41	156	---	---	22	30	45	86	---	---
TOTAL	---	77091	---	6605	---	5683	---	2707	---	2350	---	8027

TOTAL LOAD FOR YEAR: 103951 TONS.

02076500 GEORGES CREEK NEAR GRETNA, VA

LOCATION.--Lat 36°56'11", long 79°18'42", Pittsylvania County, Hydrologic Unit 03010105, on left bank 15 ft (5 m) downstream from bridge on State Highway 40, 2.8 mi (4.5 km) southeast of Gretna, and 5.8 mi (9.3 km) upstream from Whitethorn Creek.

DRAINAGE AREA.--9.24 mi² (23.93 km²).

PERIOD OF RECORD.--September 1949 to current year.

REVISED RECORDS.--WSP 1703: 1950-52. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 629.14 ft (191.764 m) above mean sea level.

REMARKS.--Records good except those for January, which are fair. Occasional regulation at low flow from unknown source. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--28 years, 9.22 ft³/s (0.261 m³/s), 13.55 in/yr (344 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,440 ft³/s (40.8 m³/s) Aug. 24, 1967, from rating curve extended above 640 ft³/s (18 m³/s) on basis of slope-area measurements at gage heights 4.93 ft (1.503 m), 6.22 ft (1.896 m), and 7.75 ft (2.362 m); maximum gage height, 7.75 ft (2.362 m) June 21, 1972; minimum daily discharge, 1.0 ft³/s (0.028 m³/s) Mar. 13, Apr. 5, 1956, July 28, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft³/s (4.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1000	*540	15.3	5.17	1.576	Oct. 26	0030	222	6.29	3.43	1.045
Oct. 20	1300	340	9.63	4.18	1.274	Dec. 7	0800	174	4.93	3.13	.954

Minimum daily discharge, 1.1 ft³/s (0.031 m³/s) Aug. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.0	8.8	12	9.0	6.9	8.6	8.2	7.0	7.6	6.6	1.9	1.9
2	8.2	7.6	11	8.7	6.9	8.6	8.6	7.2	6.8	6.6	1.1	1.7
3	8.2	7.0	9.7	8.8	7.6	8.6	9.0	7.6	6.7	6.0	1.9	1.6
4	9.2	7.0	9.2	9.0	7.6	9.2	14	8.0	6.0	6.2	1.9	1.6
5	6.6	6.6	9.2	9.3	7.2	9.7	36	8.6	6.0	3.9	2.6	2.6
6	6.2	6.2	8.8	9.2	7.0	13	14	8.0	7.6	3.5	5.1	2.1
7	6.6	6.8	56	10	7.0	10	11	8.4	7.2	3.1	5.0	13
8	6.0	6.6	22	9.2	7.2	9.0	10	8.6	6.6	2.6	2.8	12
9	142	6.6	14	9.0	7.8	8.6	9.7	7.6	7.2	2.1	2.8	8.6
10	14	7.0	12	8.6	8.6	8.6	9.2	7.0	6.6	2.1	2.1	6.0
11	9.9	6.8	12	9.2	9.2	8.6	8.8	7.0	6.4	2.9	1.9	6.6
12	8.2	7.4	16	9.2	9.0	8.6	8.6	7.0	6.6	4.6	1.6	3.9
13	7.8	6.8	13	9.0	10	14	8.2	7.0	6.0	4.4	6.6	3.7
14	7.0	7.0	11	10	9.5	11	8.2	6.8	7.6	2.6	5.6	3.7
15	6.8	7.2	11	11	9.0	9.2	8.0	6.6	7.0	2.4	4.3	3.5
16	7.0	7.0	11	8.8	8.6	8.6	7.8	6.0	6.2	2.6	2.8	6.2
17	30	6.8	9.7	8.5	8.4	8.2	7.6	5.8	5.8	2.4	2.9	6.2
18	13	7.0	9.2	8.2	8.0	8.2	7.6	5.8	5.6	2.6	4.2	3.7
19	9.9	6.8	9.2	7.8	8.2	8.0	7.6	5.8	5.2	2.1	4.3	3.3
20	128	7.0	15	7.6	8.4	15	7.2	5.8	5.0	1.9	2.9	2.6
21	23	7.2	10	7.2	8.0	10	7.2	5.6	6.6	1.9	2.9	2.1
22	13	7.0	9.0	7.1	7.8	16	7.2	5.8	6.6	2.1	5.1	2.2
23	11	7.0	9.2	7.1	7.8	12	7.2	5.8	7.6	1.7	2.9	2.6
24	11	7.0	9.0	7.1	11	10	8.6	6.0	7.0	1.6	2.8	2.6
25	35	7.0	9.5	7.2	9.9	9.5	7.6	11	6.6	2.8	2.6	2.6
26	58	6.8	13	7.4	8.8	9.2	7.0	8.8	6.7	2.6	2.6	3.0
27	11	7.8	10	8.2	9.2	8.8	7.0	7.2	5.6	1.3	2.6	2.9
28	8.6	32	9.9	8.4	9.0	8.8	6.8	6.6	5.6	1.2	2.6	2.8
29	7.6	33	9.7	7.6	---	9.0	7.4	6.8	6.6	1.6	2.2	2.6
30	7.6	16	9.0	7.0	---	9.2	7.0	7.0	5.0	2.1	1.9	2.6
31	12	---	9.0	7.0	---	8.6	---	7.2	---	1.7	2.1	---
TOTAL	620.6	268.6	383.3	261.1	233.4	307.6	279.7	218.6	187.2	83.6	86.3	116.8
MEAN	20.0	8.95	12.4	8.42	8.34	9.92	9.32	7.06	6.24	2.69	2.78	3.89
MAX	142	33	56	11	11	16	36	11	7.6	6.6	6.6	13
MIN	6.0	6.2	8.8	7.0	6.9	8.0	6.8	5.6	4.4	1.2	1.1	1.6
CFSM	2.17	.97	1.34	.91	.90	1.07	1.01	.76	.68	.29	.30	.42
IN.	2.50	1.08	1.54	1.05	.94	1.24	1.13	.88	.75	.34	.35	.47

CAL YR 1976 TOTAL 3286.3 MEAN 8.98 MAX 142 MIN 2.2 CFSM .97 IN 13.23
WTR YR 1977 TOTAL 3046.6 MEAN 8.35 MAX 142 MIN 1.1 CFSM .90 IN 12.27

02077000 BANISTER RIVER AT HALIFAX, VA

LOCATION.--Lat 36°46'35", long 78°54'58", Halifax County, Hydrologic Unit 03010105, on left bank 10 ft (3 m) downstream from bridge on U.S. Highway 360, 1,700 ft (520 m) downstream from Terrible Creek, 1 mi (1.6 km) northeast of Halifax, and 10 mi (16 km) upstream from mouth.

DRAINAGE AREA.--547 mi^2 (1,417 km^2).

PERIOD OF RECORD.--September 1904 to December 1905, October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 892: 1929-30, 1932-35. WSP 972: 1938(M), 1940. WSP 1112: 1943(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 318.54 ft (97.091 m) above mean sea level (levels by Corps of Engineers). Sept. 28, 1904, to Dec. 31, 1905, nonrecording gage at site 400 ft (120 m) upstream at different datum. Dec. 9, 1928, to Sept. 20, 1950, water-stage recorder at site 400 ft (120 m) upstream at present datum.

REMARKS.--Records good except those for periods of doubtful gage-height record during July, August, and September, which are poor. Low and medium flow regulated at times during year by a lake 0.5 mi (0.8 km) above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--50 years, 497 ft^3/s (14.08 m^3/s), 12.34 in/yr (313 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft^3/s (1,420 m^3/s) Sept. 20, 1944, gage height, 40.8 ft (12.44 m), from floodmarks, from rating curve extended above 11,000 ft^3/s (310 m^3/s) on basis of slope-area measurement of peak flow and velocity-area study; minimum, 6.0 ft^3/s (0.17 m^3/s) on many days in August and September 1932.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,100 ft^3/s (87.8 m^3/s) Dec. 8, gage height, 11.62 ft (3.542 m); minimum daily, 24 ft^3/s (6.80 m^3/s) Aug. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	169	689	990	343	279	518	361	219	187	149	32	39
2	211	564	620	269	265	429	227	215	179	143	31	44
3	250	419	491	315	272	383	322	213	170	135	30	39
4	235	269	264	367	313	369	363	223	154	126	31	35
5	186	291	305	351	402	393	412	241	140	112	33	31
6	154	276	310	338	393	484	1760	268	140	98	35	27
7	138	262	887	355	326	852	1200	268	259	97	34	25
8	144	254	2690	343	286	731	731	300	412	85	32	90
9	710	234	2050	332	284	554	572	300	244	71	29	170
10	1460	232	1120	343	324	470	481	237	125	61	26	196
11	1240	228	764	342	391	427	435	204	125	56	24	213
12	674	228	786	287	448	400	406	195	125	60	29	216
13	216	230	1060	317	490	353	268	188	124	75	25	223
14	243	225	842	373	529	563	330	181	126	114	28	213
15	208	227	646	504	466	490	324	171	133	144	30	165
16	190	228	701	583	408	416	309	164	133	135	28	97
17	241	224	738	459	357	369	293	162	133	123	25	75
18	508	219	609	334	313	351	282	162	131	90	54	80
19	402	213	509	347	330	338	275	157	126	73	80	131
20	792	212	466	330	353	470	268	151	124	66	68	160
21	2200	210	518	317	345	867	265	146	269	60	50	149
22	1970	206	520	304	317	857	263	142	371	56	74	114
23	1030	199	451	289	308	1070	256	139	183	52	97	115
24	528	196	400	297	353	798	260	141	154	49	97	115
25	505	196	270	311	635	581	282	181	116	46	91	113
26	1190	197	477	317	642	488	269	295	131	44	94	113
27	1550	224	637	330	518	442	243	279	140	42	90	112
28	932	269	536	340	538	404	231	219	165	40	73	108
29	560	1150	472	326	---	389	237	184	178	38	56	106
30	412	1830	414	282	---	389	228	169	154	36	45	105
31	454	---	385	289	---	387	---	193	---	34	41	---
TOTAL	19702	10401	21928	10634	10883	16012	12653	6307	5151	2510	1512	3419
MEAN	636	347	707	343	389	517	422	203	172	81.0	48.8	114
MAX	2200	1830	2690	583	642	1070	1760	300	412	149	97	223
MIN	138	196	264	269	265	338	227	139	116	34	24	25
CFSM	1.16	.63	1.29	.63	.71	.95	.77	.37	.31	.15	.09	.21
IN.	1.34	.71	1.49	.72	.74	1.09	.86	.43	.35	.17	.10	.23

CAL YR 1976 TOTAL 154858 MEAN 423 MAX 3570 MIN 80 CFSM .77 IN 10.53
WTR YR 1977 TOTAL 121112 MEAN 332 MAX 2690 MIN 24 CFSM .61 IN 8.24

02077500 HYCO RIVER NEAR DENNISTON, VA

LOCATION.--Lat 36°35'10", long 78°53'56", Halifax County, Hydrologic Unit 03010104, on left bank 60 ft (18 m) upstream from bridge on U.S. Highway 501, 0.8 mi (1.3 km) upstream from Mayo Creek, 2.5 mi (4.0 km) northeast of Denniston, and 7.3 mi (11.7 km) south of South Boston.

DRAINAGE AREA.--289 mi² (749 km²).

PERIOD OF RECORD.--October 1928 to September 1934, October 1950 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 1383: Drainage area, 1930. WSP 1503: 1930(M). WDR VA-75-1: 1974.

GAGE.--Water-stage recorder. Datum of gage is 315.24 ft (96.085 m) above mean sea level. July 10, 1929, to Mar. 14, 1934, nonrecording gage at same site and datum.

REMARKS.--Records good. Small diurnal fluctuation at low flow in some years caused by mill above station. Since 1964, flow regulated by Hyco Lake 15.7 mi (25.3 km) upstream, capacity, 75,480 acre-ft (93.1 hm³), and since Apr. 26, 1975, by Roxboro Steam-Electric Generating Plant afterbay Reservoir, capacity, 12,000 acre-ft (14.8 hm³). Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--33 years, 246 ft³/s (6.967 m³/s), 11.56 in/yr (294 mm/yr), adjusted for storage 1965-74.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ft³/s (306 m³/s) July 15, 1975, gage height, 24.27 ft (7.397 m), from rating curve extended above 4,000 ft³/s (110 m³/s); minimum, 0.004 ft³/s (<0.001 m³/s) Sept. 14, 1932, gage height, 3.58 ft (1.091 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in August 1928 and September 1945 reached stages of 26.4 ft (8.05 m) and 25.6 ft (7.80 m), respectively, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 931 ft³/s (26.4 m³/s) Mar. 7, gage height, 11.34 ft (3.456 m); minimum, 3.1 ft³/s (0.088 m³/s) Aug. 10, gage height, 4.29 ft (1.308 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	44	49	72	102	216	316	27	39	23	5.5	5.5
2	31	38	41	71	89	216	312	24	39	22	6.6	5.4
3	26	37	38	67	84	188	313	22	38	21	5.3	5.6
4	26	36	34	69	123	175	318	22	36	20	6.4	5.3
5	23	35	31	70	127	211	446	29	34	19	7.3	4.2
6	23	33	30	70	118	423	458	109	32	18	7.0	3.6
7	25	31	151	75	108	858	346	72	35	19	5.7	5.6
8	26	29	260	80	104	849	326	61	35	19	4.4	127
9	223	29	175	77	104	627	308	50	34	20	3.6	266
10	123	32	92	184	106	444	297	52	34	21	3.3	101
11	44	32	79	350	108	329	286	64	32	66	5.2	41
12	33	32	191	232	108	262	169	70	31	56	6.5	24
13	30	33	191	264	125	284	93	71	30	32	9.0	17
14	28	31	95	193	131	326	61	70	30	28	8.2	15
15	26	32	76	571	119	283	56	68	32	27	52	12
16	25	36	116	599	112	249	54	65	32	27	28	10
17	26	35	100	490	108	210	51	66	30	26	11	12
18	29	32	79	455	105	181	49	67	30	25	66	15
19	28	31	71	422	108	165	47	66	29	25	57	8.5
20	197	31	70	395	113	146	45	57	26	26	15	6.7
21	294	30	85	366	108	158	43	47	25	26	9.5	8.0
22	76	30	77	333	105	238	42	40	26	25	5.7	7.3
23	50	28	73	298	104	351	39	37	30	24	5.4	7.1
24	42	28	70	255	126	380	38	37	31	22	14	10
25	41	28	66	206	218	351	38	43	32	20	20	9.5
26	51	27	82	176	155	299	35	96	34	18	9.1	9.5
27	47	27	96	160	155	279	32	74	27	18	6.9	8.1
28	39	34	84	153	287	271	31	57	24	19	6.2	8.0
29	37	86	81	145	---	270	30	43	24	17	6.6	7.3
30	36	78	76	126	---	312	30	38	24	14	5.4	6.8
31	40	---	76	112	---	331	---	38	---	8.6	5.5	---
TOTAL	1770	1065	2835	7136	3460	9882	4709	1682	935	751.6	407.3	772.0
MEAN	57.1	35.5	91.5	230	124	319	157	54.3	31.2	24.2	13.1	25.7
MAX	294	86	260	599	287	858	458	109	39	66	66	266
MIN	23	27	30	67	84	146	30	22	24	8.6	3.3	3.6

CAL YR 1976 TOTAL 44796.0 MEAN 122 MAX 1760 MIN 18
WTR YR 1977 TOTAL 35404.9 MEAN 97.0 MAX 858 MIN 3.3

02079490 JOHN H. KERR RESERVOIR NEAR BOYDTON, VA

LOCATION.--Lat 36°35'56", long 78°18'06", Mecklenburg County, Hydrologic Unit 03010102, at John H. Kerr Dam on Roanoke River, 2.7 mi (4.3 km) upstream from Allen Creek, 6.7 mi (10.8 km) southeast of Boydton, 18 mi (29 km) upstream from the Virginia-North Carolina State line, and at mile 178.7 (287.5 km).

DRAINAGE AREA.--7,780 mi^2 (20,150 km^2), approximately.

PERIOD OF RECORD.--July 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Reservoir is formed by concrete dam with earth embankments. Spillway, with crest at elevation 288.0 ft (87.78 m), is equipped with 22 radial gates 32 ft (9.8 m) high by 42 ft (13 m) wide. Storage began in September 1950 during construction; initial filling started June 30, 1952; water in reservoir first reached rule-curve elevation in March 1953. Total capacity at top of gates, elevation, 320 ft (97.5 m), is 2,750,300 acre-ft (3.39 km^3) of which 1,278,000 acre-ft (1.58 km^3) is controlled flood storage between elevations 300 ft (91.4 m), top of power pool, and 320 ft (97.5 m); 720,900 acre-ft (889 hm^3) is available for power between elevations 281.2 ft (85.71 m), bottom of power pool, and 300 ft (91.4 m); 751,400 acre-ft (926 hm^3) is inactive and dead storage below elevation 281.2 ft (85.71 m). Figures given herein represent total contents. Reservoir is used for flood control, hydroelectric power, low-water regulation for navigation and pollution abatement release of water for downstream fish spawning, and recreation.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 2,656,300 acre-ft (3.28 km^3) Apr. 3, 1975, elevation, 318.85 ft (97.185 m); minimum (after first filling to rule curve), 724,700 acre-ft (894 hm^3) Feb. 3, 1956, elevation, 280.23 ft (85.414 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,703,100 acre-ft (2.10 km^3) Apr. 11, elevation, 304.46 ft (92.799 m); minimum, 1,090,100 acre-ft (1.34 km^3) Nov. 24, elevation, 291.28 ft (88.782 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	295.47	1263000	
Oct. 31	299.98	1471300	+208300
Nov. 30	292.37	1133200	-338100
Dec. 31	295.57	1267400	+134200
CAL YR 1976			-76400
Jan. 31	295.10	1246900	-20500
Feb. 28	295.51	1264800	+17900
Mar. 31	301.19	1531400	+266600
Apr. 30	302.77	1612600	+81200
May 31	298.68	1408800	-203800
June 30	299.22	1434500	+25700
July 31	296.59	1312600	-122000
Aug. 31	294.90	1238200	-74400
Sept. 30	294.47	1220000	-18200
WTR YR 1977			-43000

02079640 ALLEN CREEK NEAR BOYDTON, VA

LOCATION.--Lat 36°40'46", long 78°19'37", Mecklenburg County, Hydrologic Unit 03010106, on left bank at upstream side of bridge on U.S. Highway 58, 0.8 mi (1.3 km) upstream from Coleman Creek, 2.3 mi (3.7 km) downstream from Layton Creek, 3.7 mi (6.0 km) east of Boydton, and 11.8 mi (19.0 km) southwest of South Hill.

DRAINAGE AREA.--53.4 mi² (138.3 km²).

PERIOD OF RECORD.--October 1961 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 216.50 ft (65.989 m) above mean sea level (levels by Virginia Department of Highways and Transportation).

REMARKS.--Records good except those for January, which are fair.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--16 years, 38.8 ft³/s (1.099 m³/s), 9.87 in/yr (251 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,620 ft³/s (159 m³/s) Oct. 23, 1971, gage height, 21.80 ft (6.645 m), from rating curve extended above 3,100 ft³/s (88 m³/s); no flow many days in August, September, and October 1968, September and October 1970.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,040 ft³/s (29.5 m³/s) at 2000 hours Oct. 20, gage height, 12.80 ft (3.901 m), no other peak above base of 850 ft³/s (24 m³/s); minimum, 0.03 ft³/s (<0.001 m³/s) Aug. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	10	18	19	19	65	24	11	8.2	3.8	.60	.55
2	4.1	9.0	14	18	18	43	23	10	8.5	14	.60	.45
3	11	8.0	13	17	17	35	36	10	9.9	10	.70	.35
4	6.0	7.8	11	17	17	71	62	11	6.7	4.9	.94	.30
5	4.3	7.8	11	17	16	106	262	47	6.0	3.7	1.0	.20
6	3.6	7.4	10	18	16	280	125	29	6.2	3.3	.78	.12
7	3.3	7.0	43	20	16	303	53	18	8.2	3.0	.65	.08
8	3.3	7.0	154	20	16	130	41	24	6.2	2.9	.65	.70
9	165	6.6	73	21	15	68	33	16	6.0	2.6	.55	4.4
10	32	6.6	41	108	15	50	29	12	6.5	2.3	.35	2.7
11	14	7.0	37	122	15	41	27	11	5.6	10	.20	1.7
12	9.0	7.2	180	56	17	36	25	11	5.2	6.7	.18	1.0
13	7.6	7.2	104	36	34	41	23	10	5.0	3.7	.14	.70
14	6.8	7.4	48	38	35	39	21	9.7	4.9	2.9	.10	.50
15	6.4	7.6	37	240	26	31	19	8.7	5.2	2.3	.06	.40
16	6.0	8.4	57	102	22	28	18	8.0	5.4	2.1	.06	1.1
17	7.2	8.4	44	58	20	25	17	7.8	5.0	1.9	.16	14
18	17	8.0	33	41	19	24	16	7.8	4.9	1.6	1.7	4.3
19	12	7.8	27	33	20	23	16	7.3	4.8	1.3	2.7	2.1
20	332	7.8	27	28	25	195	15	6.9	4.4	1.2	1.3	1.3
21	155	7.6	46	24	22	99	14	6.7	3.8	1.1	.78	.94
22	27	7.2	33	20	19	287	14	6.5	3.4	1.0	.60	.65
23	15	7.0	27	19	19	140	13	6.3	3.8	.86	.65	.55
24	11	6.6	25	19	28	62	14	6.7	5.2	.86	12	.50
25	11	6.6	25	19	78	44	17	14	11	.78	3.7	.45
26	53	6.8	31	20	40	37	14	25	24	.78	1.8	.45
27	23	7.4	36	23	106	32	12	14	9.2	.78	1.2	.45
28	13	9.6	28	28	217	30	11	9.4	6.0	.78	.86	.45
29	10	48	25	30	---	29	12	7.8	4.9	.70	.70	.40
30	9.2	32	21	25	---	29	11	8.0	4.3	.65	.65	.35
31	9.6	---	20	20	---	29	---	8.9	---	.55	.60	---
TOTAL	990.4	292.8	1299	1276	927	2452	1017	389.5	198.4	93.04	36.96	42.14
MEAN	31.9	9.76	41.9	41.2	33.1	79.1	33.9	12.6	6.61	3.00	1.19	1.40
MAX	332	48	180	240	217	303	262	47	24	14	12	14
MIN	3.0	6.6	10	17	15	23	11	6.3	3.4	.55	.06	.08
CFSM	.60	.18	.79	.77	.62	1.48	.64	.24	.12	.06	.02	.03
IN.	.69	.20	.90	.89	.65	1.71	.71	.27	.14	.06	.03	.03

CAL YR 1976 TOTAL 11321.77 MEAN 30.9 MAX 1080 MIN .12 CFSM .58 IN 7.89
WTR YR 1977 TOTAL 9014.24 MEAN 24.7 MAX 332 MIN .06 CFSM .46 IN 6.28

KANAWHA RIVER BASIN

03161000 SOUTH FORK NEW RIVER NEAR JEFFERSON, NC

LOCATION.--Lat 36°23'40", long 81°24'27", Ashe County, Hydrologic Unit 05050001, on right bank 600 ft (183 m) upstream from bridge on State Highways 16 and 88, 0.2 mi (0.3 km) downstream from Bear Creek, and 4 mi (6.4 km) southeast of Jefferson.

DRAINAGE AREA.--207 mi² (536 km²).

PERIOD OF RECORD.--October 1924 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1275: 1925-26(M), 1928-30(M), 1931-32, 1933-35(M), 1941-42(m), 1944(m).

GAGE.--Water-stage recorder. Datum of gage is 2,657.04 ft (809.866 m) above mean sea level, unadjusted. Prior to Oct. 14, 1934, nonrecording gage on bridge 400 ft (122 m) downstream at same datum. Oct. 14, 1934, to Mar. 25, 1935, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter period Jan. 3 to Feb. 23, which are fair to poor.

AVERAGE DISCHARGE.--53 years, 424 ft³/s (12.01 m³/s), 27.82 in/yr (707 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 52,800 ft³/s (1,500 m³/s) Aug. 14, 1940, gage height, 22.50 ft (6.858 m), from rating curve extended above 5,100 ft³/s (144 m³/s) on basis of slope-area measurement of peak flow; minimum, 52 ft³/s (1.47 m³/s) Dec. 24, 1943, result of freezeup; minimum daily, 65 ft³/s (1.84 m³/s) Sept. 9, 1925.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 15, 1916, reached a stage of 18.0 ft (5.49 m), from floodmarks witnessed by local resident, discharge, 35,200 ft³/s (997 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,600 ft³/s (74 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	0300	*5280	150	7.26	2.213	Apr. 5	1430	4460	126	6.75	2.057
Mar. 13	2030	5130	145	7.17	2.185	Sept. 8	1700	3060	86.7	5.72	1.743

Minimum discharge, 126 ft³/s (3.57 m³/s) Jan. 2, gage height, 1.69 ft (0.515 m), result of freezeup; minimum daily, 217 ft³/s (6.15 m³/s) Sept. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	457	494	337	280	350	504	605	518	595	424	233	270
2	312	426	359	283	350	432	556	545	492	440	231	282
3	271	404	346	285	345	391	637	540	396	368	237	234
4	248	391	331	285	355	454	772	776	366	337	239	242
5	236	377	322	285	370	678	3340	815	346	325	255	230
6	230	361	334	290	350	754	1660	651	364	312	294	217
7	627	350	1580	290	330	836	1090	585	570	303	280	386
8	4130	341	947	290	320	620	887	574	387	294	228	1870
9	4840	332	621	330	310	527	773	535	358	285	244	1360
10	1980	333	517	300	305	472	708	497	357	279	323	686
11	1010	325	469	290	290	452	660	479	328	320	453	506
12	744	367	509	295	295	573	621	460	322	578	341	411
13	613	358	546	300	430	4500	594	445	356	501	278	366
14	531	324	470	430	550	2020	574	407	393	363	361	348
15	476	325	498	420	450	1130	551	395	469	310	438	337
16	439	328	658	410	400	871	536	392	523	289	405	438
17	598	318	544	400	360	742	513	385	936	278	298	475
18	578	312	482	395	350	676	501	370	1290	270	374	364
19	451	299	445	390	370	630	499	360	595	296	385	330
20	447	294	434	390	350	665	541	351	466	273	286	458
21	474	294	495	390	330	645	483	344	423	254	267	384
22	417	290	434	390	340	698	468	343	398	255	271	325
23	388	281	439	385	360	693	540	385	589	262	249	304
24	384	277	452	380	936	599	1090	411	531	248	266	290
25	462	298	410	375	980	558	750	432	535	240	282	284
26	786	286	425	370	575	527	607	526	468	281	252	278
27	575	330	402	365	561	502	560	579	435	289	245	279
28	486	362	401	360	637	488	521	417	451	246	240	268
29	443	609	372	355	---	481	581	373	395	245	232	256
30	427	466	351	355	---	640	576	400	369	248	251	252
31	528	---	405	350	---	802	---	467	---	243	264	---
TOTAL	24588	10552	15335	10713	11949	24560	22794	14757	14503	9656	9002	12730
MEAN	793	352	495	346	427	792	760	476	483	311	290	424
MAX	4840	609	1580	430	980	4500	3340	815	1290	578	453	1870
MIN	230	277	322	280	290	391	468	343	322	240	228	217
CFSM	3.83	1.70	2.39	1.67	2.06	3.83	3.67	2.30	2.33	1.50	1.40	2.05
IN.	4.42	1.90	2.76	1.93	2.15	4.41	4.10	2.65	2.61	1.74	1.62	2.29

CAL YR 1976 TOTAL 177743 MEAN 486 MAX 4840 MIN 198 CFSM 2.35 IN 31.94
WTR YR 1977 TOTAL 181139 MEAN 496 MAX 4840 MIN 217 CFSM 2.40 IN 32.58

03164000 NEW RIVER NEAR GALAX, VA

LOCATION.--Lat 36°38'50", long 80°58'45", Grayson County, Hydrologic Unit 05050001, on left bank at upstream side of bridge on U.S. Highway 58, 500 ft (152 m) downstream from Meadow Creek, 1.2 mi (1.9 km) southwest of Old Town, 3.1 mi (5.0 km) southwest of Galax, and 3.6 mi (5.8 km) downstream from Elk Creek.

DRAINAGE AREA.--1,131 mi² (2,929 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1929 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 758: Drainage area, 1933(M). WSP 893: 1930(M), 1935(M).

GAGE.--Water-stage recorder. Datum of gage is 2,208.04 ft (673.011 m) above mean sea level.

REMARKS.--Records good. Appalachian Power Co. long-distance gage-height transmitter at station, recorder at Roanoke.

AVERAGE DISCHARGE.--48 years, 1,873 ft³/s (53.04 m³/s), 22.49 in/yr (571 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 141,000 ft³/s (3,990 m³/s) Aug. 14, 1940, gage height, 25.7 ft (7.83 m), from floodmark, from rating curve extended above 32,000 ft³/s (910 m³/s) on basis of computation of peak flow over dam at Fries 6 mi (10 km) downstream and slope-area measurement of peak flow; minimum, 193 ft³/s (5.47 m³/s) Jan. 9, 1956, gage height, 0.52 ft (0.158 m), result of freezeup; minimum daily, 265 ft³/s (7.50 m³/s) Sept. 19, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 9,000 ft³/s (250 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1130	24100	683	7.24	2.207
Mar. 13	1630	20600	583	6.50	1.981
Apr. 5	1130	*28400	804	8.10	2.469

Minimum discharge, 734 ft³/s (20.8 m³/s) Sept. 6, 7, gage height, 1.01 ft (0.308 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2040	2270	1400	2000	1300	3370	2460	2200	1480	1420	813	971
2	1950	2040	1500	1300	1300	2680	2420	2110	1820	1590	782	906
3	1490	1880	1400	1200	1300	2290	2500	2070	1470	1950	782	832
4	1240	1790	1350	1700	1350	2150	3910	2390	1290	1420	866	851
5	1080	1710	1300	1900	1400	2740	21200	3700	1230	1230	968	866
6	986	1630	1400	1800	1500	3390	13700	2830	1240	1120	1150	787
7	1420	1560	6500	2000	1300	4100	6760	2620	1900	1080	932	769
8	14000	1510	4000	1600	1200	3380	4810	2380	1720	1020	919	2020
9	21800	1440	3200	1400	1200	2790	3830	2220	1400	956	882	4500
10	12800	1420	2610	1300	1300	2470	3490	2080	1340	940	1410	2410
11	5270	1410	2290	1200	1500	2300	3090	1990	1260	1150	1220	1660
12	3640	1510	2340	1100	1900	2300	2780	1820	1150	1880	1070	1430
13	2970	1560	2610	1400	2100	13000	2550	1730	1100	2240	1080	1190
14	2380	1440	2470	1500	2400	12400	2400	1630	1180	1790	1220	1070
15	2080	1400	2340	2100	2300	6240	2270	1540	1440	1330	1400	1020
16	1880	1350	2780	2400	2200	4480	2160	1540	1340	1100	1840	1170
17	2120	1300	2620	1800	1900	3710	2060	1500	1500	997	1240	1750
18	2300	1300	2280	1500	1600	3410	1990	1480	3000	949	1320	1710
19	1970	1250	2090	1600	1600	3040	1950	1420	2300	967	1400	1300
20	960	1200	2000	1700	1500	3480	2030	1340	1640	942	1190	1450
21	2020	1200	2120	1800	1400	3790	2110	1340	1440	970	978	1490
22	1860	1150	1920	1700	1500	3450	1880	1260	1260	862	909	1240
23	1660	1150	1910	1700	1600	3410	1910	1360	1370	851	957	1060
24	1610	1100	1930	1600	4190	2940	3340	1360	1770	870	926	989
25	1960	1250	1810	1500	6760	2580	3240	1420	1720	816	867	939
26	4550	1200	1870	1600	4270	2340	2400	1610	1900	804	967	905
27	3820	1300	1840	1600	3590	2170	2140	1770	1770	865	870	891
28	2880	1500	1730	1600	4090	2040	1990	1680	1770	869	821	880
29	2400	2500	1760	1500	---	2000	2160	1600	1590	798	788	856
30	2130	2000	1580	1300	---	2170	2490	1280	1540	805	795	822
31	2300	---	1570	1200	---	3310	---	1340	---	852	927	---
TOTAL	112364	45320	68560	49600	59550	113920	112420	56190	46930	35433	32289	38734
MEAN	3625	1511	2212	1600	2127	3675	3747	1813	1564	1143	1042	1291
MAX	21800	2500	6500	2400	6760	13000	21200	3700	3000	2240	1840	4500
MIN	946	1100	1300	1100	1200	2000	1880	1260	1100	798	782	769
CFSM	3.21	1.34	1.96	1.42	1.88	3.25	3.31	1.60	1.38	1.01	.92	1.14
IN.	3.70	1.49	2.26	1.63	1.96	3.75	3.70	1.85	1.54	1.17	1.06	1.27

CAL YR 1976 TOTAL 766719 MEAN 2095 MAX 21800 MIN 649 CFSM 1.85 IN 25.22
WTR YR 1977 TOTAL 771310 MEAN 2113 MAX 21800 MIN 769 CFSM 1.87 IN 25.37

03164000 NEW RIVER NEAR GALAX, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1931, 1950, 1952, 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1968 to current year.
WATER TEMPERATURES: October to December 1949, April 1968 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 88 micromhos Nov. 13, 1971; minimum, 10 micromhos Nov. 20, 1975.
WATER TEMPERATURES (water years 1968-77): Maximum, 31.0°C July 17, 18, 1969; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 60 micromhos July 3-8; minimum, 39 micromhos Mar. 13.
WATER TEMPERATURES: Maximum, 28.0°C Aug. 11; minimum, 0.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
OCT 15...	0805	2090	55	5	14	0	3.4	1.4	2.8	1.6	18	2.6
NOV 15...	0805	1390	51	0	24	9	7.0	1.7	3.1	1.5	19	3.3
DEC 15...	0800	2280	46	0	14	0	3.6	1.2	3.2	1.2	20	3.0
JAN 15...	0800	2100	55	0	16	4	4.0	1.5	4.4	1.3	15	2.7
FEB 15...	0800	2300	53	5	15	2	4.0	1.2	3.6	1.6	16	2.9
MAR 15...	0810	6570	46	0	14	0	3.3	1.3	2.9	1.2	16	2.8
APR 15...	0800	2280	47	0	14	0	3.6	1.3	3.1	1.3	20	2.8
MAY 15...	0800	1500	48	5	16	0	4.0	1.4	3.3	1.2	20	2.6
JUN 15...	0805	1420	57	15	18	0	4.7	1.6	3.5	1.7	24	3.0
JUL 15...	0800	1370	52	8	17	0	4.2	1.5	3.8	1.9	26	2.1
AUG 15...	0800	1280	55	0	19	1	4.6	1.6	3.8	2.0	21	3.2
SEP 15...	0815	1040	51	16	16	3	3.9	1.5	3.2	1.7	16	3.5

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED NITRATE (N) (MG/L)	DISSOLVED NITRATE (NO3) (MG/L)	DISSOLVED NITRITE (N) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO PHOSPHATE (PO4) (MG/L)	DISSOLVED IRON (FE) (UG/L)
OCT 15...	2.8	.1	11	32	37	.50	2.2	.00	.50	.01	.03	20
NOV 15...	2.7	.0	12	33	44	.65	2.9	.00	.65	.01	.03	20
DEC 15...	2.0	.0	12	38	39	.60	2.7	.00	.60	.00	.00	20
JAN 15...	4.5	.0	13	54	42	.70	3.1	.00	.70	.00	.00	10
FEB 15...	3.8	.0	12	48	41	.81	3.6	.00	.81	.01	.03	10
MAR 15...	3.0	.1	11	40	36	.54	2.4	.00	.54	.00	.00	20
APR 15...	3.1	.1	12	49	39	.48	2.1	.00	.48	.00	.00	40
MAY 15...	2.9	.0	10	43	37	.36	1.6	.00	.36	.00	.00	10
JUN 15...	3.1	.0	11	46	43	.46	2.0	.00	.46	.00	.00	40
JUL 15...	4.0	.1	9.3	41	42	.39	1.7	.04	.43	.00	.00	50
AUG 15...	4.4	.1	10	44	40	.07	.30	.01	.08	.00	.00	40
SEP 15...	3.7	.0	11	42	39	.57	2.5	.00	.57	.00	.00	90

03164000 NEW RIVER NEAR GALAX, VA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	56	48	55	53	44	48	44	45	57	52	56
2	53	56	48	55	59	44	48	45	49	59	44	57
3	53	56	48	55	54	44	48	45	52	60	45	57
4	53	57	46	55	53	42	52	45	51	60	48	57
5	52	57	46	55	54	45	48	44	52	60	48	56
6	52	55	45	55	53	45	47	45	52	60	50	52
7	53	50	42	55	53	45	48	44	51	60	55	52
8	53	49	46	54	54	45	48	44	52	60	55	52
9	53	49	46	55	53	46	48	45	52	50	52	52
10	53	49	46	54	53	48	47	44	50	50	55	52
11	53	49	46	55	53	47	48	45	50	50	58	52
12	53	49	46	55	53	47	45	45	50	52	55	52
13	54	49	48	56	53	39	46	42	50	50	58	51
14	54	49	46	55	54	47	47	44	50	50	55	45
15	55	49	46	55	53	46	47	48	57	[illegible]	55	48
16	58	48	46	55	54	46	47	44	48	50	50	51
17	58	48	43	55	50	46	48	45	50	49	55	51
18	57	48	45	56	51	46	47	47	50	50	45	51
19	57	49	45	55	50	46	43	49	50	50	48	52
20	59	49	49	55	50	46	45	50	50	48	50	55
21	57	49	45	55	50	47	45	50	50	40	58	54
22	56	49	46	55	49	47	44	50	50	40	58	52
23	56	49	46	54	50	47	44	49	50	42	58	51
24	56	49	46	55	50	42	42	50	50	50	56	51
25	56	49	46	54	45	46	42	50	50	48	56	51
26	56	48	46	54	44	46	45	47	50	45	56	51
27	56	49	46	54	44	45	44	50	52	48	56	52
28	56	48	46	54	44	45	45	50	52	47	56	50
29	56	48	46	54	---	46	45	50	54	50	---	49
30	56	48	55	54	---	46	45	50	56	48	---	50
31	56	---	55	52	---	---	---	49	---	---	---	---
MEAN	55	50	47	55	51	45	46	47	51	51	53	52

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.0	4.0	0.0	2.5	0.0	7.0	15.0	19.0	20.0	25.0	22.5	20.0
2	15.0	4.0	0.0	2.0	0.0	7.5	15.0	19.0	20.0	25.5	23.0	20.0
3	14.0	5.0	0.5	2.0	0.0	8.0	15.5	18.5	20.0	26.0	22.0	19.0
4	14.0	5.0	1.0	0.0	0.0	9.0	16.0	19.0	20.0	26.5	21.0	19.0
5	13.0	5.0	1.5	0.0	0.0	8.5	16.5	19.0	20.5	26.0	21.5	19.0
6	14.0	5.0	2.0	0.0	0.0	10.0	17.0	19.0	21.0	26.5	22.0	19.0
7	13.0	5.5	2.0	0.0	0.0	10.0	17.5	18.5	21.0	26.0	21.0	18.0
8	13.0	5.0	2.5	0.0	0.0	10.0	18.0	18.5	21.5	25.5	21.0	18.0
9	13.0	4.5	2.5	0.0	0.0	10.0	18.5	18.0	22.0	25.0	21.0	18.5
10	13.0	4.5	3.0	0.0	0.0	10.0	19.0	19.0	22.0	24.0	20.0	18.0
11	13.0	4.0	3.0	0.0	0.5	10.5	19.5	20.0	21.5	24.0	20.0	19.0
12	12.0	4.0	3.5	0.0	2.0	11.0	20.0	20.0	21.0	24.0	20.0	18.0
13	11.0	3.5	3.5	0.0	2.5	10.5	20.0	19.5	21.0	24.0	21.0	18.0
14	11.0	4.0	3.5	0.0	2.0	10.0	20.0	19.0	21.0	24.0	20.0	18.5
15	10.0	3.0	4.0	0.0	2.0	10.5	20.5	18.0	21.0	24.0	20.0	18.0
16	10.0	3.0	4.0	0.0	2.0	11.5	21.0	19.0	21.0	23.0	21.0	17.0
17	10.0	3.0	4.0	0.0	2.5	12.0	20.5	18.5	21.5	22.5	20.5	17.0
18	11.0	3.0	4.0	0.0	2.5	12.0	20.5	18.0	21.0	22.5	20.0	17.0
19	8.0	3.0	5.0	0.0	2.0	11.5	20.0	19.0	20.5	23.0	20.0	16.0
20	8.0	2.5	5.0	0.0	2.0	11.5	20.5	19.5	20.0	23.0	20.0	20.0
21	7.0	2.0	5.0	0.0	2.0	12.0	20.5	19.5	21.5	23.0	20.0	18.5
22	6.0	2.0	5.0	0.0	2.0	12.0	20.5	19.5	22.0	23.0	20.0	16.0
23	7.0	2.0	3.5	0.0	2.5	12.0	21.0	20.0	22.0	24.0	20.0	17.0
24	7.0	2.0	5.0	0.0	3.0	12.5	21.0	20.5	22.0	24.0	20.0	17.0
25	6.0	1.5	5.0	0.0	4.0	13.0	21.0	21.0	22.0	23.0	20.0	16.5
26	6.0	1.0	5.0	0.0	4.5	13.5	21.0	21.0	22.5	23.0	19.0	16.0
27	6.0	0.5	5.0	0.0	5.0	14.0	21.0	20.5	23.0	23.0	19.0	15.0
28	5.0	0.5	3.5	0.0	6.0	14.5	20.5	20.0	23.5	22.0	20.0	15.0
29	5.0	1.0	3.5	0.0	---	15.0	20.0	20.0	24.0	22.0	---	15.0
30	4.0	0.5	3.0	0.0	---	15.5	19.5	20.0	24.0	22.0	---	15.0
31	4.0	---	3.0	0.0	---	---	---	20.0	---	---	---	---
MEAN	10.0	3.0	3.5	0.0	2.0	11.0	19.0	19.5	21.5	24.0	21.0	17.5

03165000 CHESTNUT CREEK AT GALAX, VA

LOCATION.--Lat 36°38'45", long 80°55'10", Galax City, Hydrologic Unit 05050001, on right bank 200 ft (61 m) upstream from bridge on State Highway 89 and 1.7 mi (2.7 km) downstream from Wards Mill Branch.
DRAINAGE AREA.--39.4 mi² (102.0 km²).
PERIOD OF RECORD.--September 1944 to current year.
REVISED RECORDS.--WSP 1385: 1953.
GAGE.--Water-stage recorder. Datum of gage is 2,344.17 ft (714.503 m) above mean sea level. Prior to June 25, 1948, nonrecording gage, and June 25, 1948, to May 28, 1953, water-stage recorder, at site 200 ft (61 m) upstream at datum 0.86 ft (0.262 m) higher.
REMARKS.--Records fair except those for periods of doubtful or no gage-height record, May 27 to July 11 and July 13 to Aug. 14, which are poor. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
AVERAGE DISCHARGE.--33 years, 66.4 ft³/s (1.880 m³/s), 22.89 in/yr (581 mm/yr).
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,980 ft³/s (198 m³/s) Oct. 17, 1947, gage height, 14.4 ft (4.39 m), from floodmark, site and datum then in use, from rating curve extended above 2,200 ft³/s (62 m³/s) on basis of two slope-area and one contracted-opening measurements at gage heights 9.5 ft (2.90 m), 14.4 ft (4.39 m), and 17.4 ft (5.30 m), respectively, site and datum then in use; minimum, 13 ft³/s (0.37 m³/s) Jan. 5, 1956, result of freezeup; minimum daily, 14 ft³/s (0.40 m³/s) Sept. 2, 1953, Sept. 18, 1954, Sept. 6, 1977.
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 14, 1940, reached a stage of 17.4 ft (5.30 m), at site and datum used 1944-53, discharge, 11,000 ft³/s (312 m³/s) by contracted-opening measurement.
EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft³/s (20 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 7	2030	1860	52.7	5.41	1.649	Mar. 13	0545	*a2620	74.2	6.94	2.115
Oct. 8	2030	1880	53.2	5.47	1.667	Apr. 5	0730	720	20.4	2.85	.869
Dec. 7	0335	916	25.9	3.34	1.018						

a From rating curve extended above 510 ft³/s (14 m³/s) on basis of slope-area measurements at gage heights 11.07 ft (3.374 m) and 12.93 ft (3.941 m), respectively.

Minimum daily discharge, 14 ft³/s (0.40 m³/s) Sept. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	39	32	27	27	30	41	43	38	30	16	20
2	33	37	28	26	24	28	92	38	30	35	16	18
3	25	36	27	32	27	36	97	40	25	30	18	17
4	22	35	26	38	29	147	130	140	26	27	25	18
5	20	32	27	36	30	113	432	65	26	23	35	16
6	30	31	66	35	25	158	140	36	37	21	20	14
7	667	30	605	32	24	108	120	33	34	21	19	49
8	1220	29	132	28	24	38	102	32	28	20	20	134
9	576	28	63	25	25	35	90	30	28	19	32	38
10	232	28	38	26	30	39	60	29	25	25	25	30
11	141	35	37	22	36	37	37	28	23	35	23	26
12	112	32	55	29	36	112	35	27	22	40	22	23
13	96	30	39	30	85	1180	33	27	23	35	25	21
14	61	32	37	61	38	197	31	26	35	26	35	20
15	35	37	50	64	35	166	40	25	25	22	101	35
16	61	36	65	35	32	113	92	25	30	20	93	92
17	166	35	37	33	31	96	90	30	40	19	27	35
18	66	32	35	32	32	36	91	28	40	20	30	27
19	61	30	35	35	30	60	93	27	35	19	25	35
20	74	28	36	38	29	135	93	26	30	20	20	30
21	157	26	37	36	36	92	153	25	26	18	14	25
22	62	25	62	35	32	120	61	25	27	17	20	22
23	38	25	37	32	36	92	96	27	35	18	19	20
24	40	25	38	30	244	69	145	30	30	17	17	19
25	86	26	37	32	67	35	96	35	38	16	30	18
26	176	27	37	36	37	32	61	65	35	25	20	18
27	156	39	36	32	85	61	37	35	35	19	18	18
28	60	52	35	35	37	91	35	29	32	16	16	17
29	32	130	33	25	---	91	70	25	30	16	16	17
30	36	36	32	26	---	117	50	26	28	20	19	17
31	117	---	36	25	---	96	---	30	---	17	35	---
TOTAL	4614	1052	1609	974	1235	3656	2735	1067	908	706	855	929
MEAN	149	35.1	51.9	31.4	44.1	118	91.2	34.4	30.3	22.8	27.6	31.0
MAX	1220	130	605	64	244	1180	432	140	40	40	101	134
MIN	20	25	26	22	24	28	31	25	22	16	14	14
CFSM	3.78	.89	1.32	.80	1.12	3.00	2.32	.87	.77	.58	.70	.79
IN.	4.36	.99	1.52	.92	1.17	3.45	2.58	1.01	.86	.67	.81	.88

CAL YR 1976 TOTAL 25490 MEAN 69.6 MAX 1220 MIN 20 CFSM 1.77 IN 24.07
WTR YR 1977 TOTAL 20340 MEAN 55.7 MAX 1220 MIN 14 CFSM 1.42 IN 19.22

03165500 NEW RIVER AT IVANHOE, VA

LOCATION.--Lat 36°50'05", long 80°57'10", Wythe County, Hydrologic Unit 05050001, on left bank at Ivanhoe, 2.1 mi (3.4 km) downstream from Big Branch, and 2.3 mi (3.7 km) upstream from Cripple Creek.

DRAINAGE AREA.--1,340 mi² (3,471 km²).

PERIOD OF RECORD.--August to December 1927, October 1929 to current year. Monthly discharge only for some periods, published in WSP 1305. Gage-height records collected in vicinity, October 1916 to July 1943, are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 783: Drainage area, 1933(M).

GAGE.--Water-stage recorder. Datum of gage is 1,943.09 ft (592.254 m) above mean sea level.

REMARKS.--Records good. Large diurnal fluctuation and some regulation caused by powerplants at Buck 2.8 mi (4.5 km) above station and at Byllesby 5.5 mi (8.8 km) above station. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--48 years, 2,118 ft³/s (59.98 m³/s), 21.46 in/yr (545 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 155,000 ft³/s (4,390 m³/s) Aug. 14, 1940, gage height, 38.1 ft (11.61 m), from floodmarks, from rating curve extended above 32,000 ft³/s (910 m³/s) on basis of flood records for other stations on New River; minimum, 44 ft³/s (1.25 m³/s) Oct. 11, 1965, gage height, 0.59 ft (0.180 m); minimum daily, 184 ft³/s (5.21 m³/s) July 28, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1916 reached a stage of 34.8 ft (10.61 m), from floodmark, discharge, 132,000 ft³/s (3,740 m³/s), from rating curve extended as explained above. Flood in September 1878 was about 5 ft (1.5 m) lower than flood in July 1916 and was the highest between 1840 and 1916.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 13,500 ft³/s (380 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1000	26100	739	13.28	4.048	Apr. 5	1630	*27500	779	13.80	4.206
Mar. 13	2200	20800	589	11.29	3.441						

Minimum discharge, 188 ft³/s (5.32 m³/s) Aug. 9, gage height, 1.12 ft (0.341 m); minimum daily, 643 ft³/s (18.2 m³/s) July 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2120	2800	2220	2200	1440	4060	3540	2490	1630	1460	883	996
2	1900	2460	1760	1340	1400	2910	2790	2730	2190	1380	765	924
3	1780	2190	1710	1170	1440	2540	2850	2380	1670	2180	750	663
4	1540	2040	1660	1880	1470	2330	4480	2670	1330	1550	866	910
5	1340	2090	1780	2150	1500	2950	20500	3810	1370	1580	890	958
6	1130	1510	2040	1880	1760	3710	16000	3570	1600	1170	1190	999
7	1510	1800	5700	2150	1360	4790	8040	2670	1740	1220	1070	925
8	12700	2140	7400	2290	1360	3870	5900	2520	2080	1090	796	1980
9	23700	1770	4410	1500	1360	3140	4740	2580	1540	893	795	4300
10	14500	1590	3460	1500	1360	2740	4040	2310	1530	996	1440	3190
11	7220	1630	2530	1460	1610	2640	3400	2120	1120	1370	1700	1910
12	5020	1760	2710	1080	1730	2140	3290	2010	1330	1830	1060	1740
13	4190	1420	3370	1060	2200	13300	2930	1950	1470	2580	1110	1200
14	3410	1680	2890	1830	2450	14800	2800	1830	1390	2010	1210	1210
15	2890	1920	2840	2620	2480	7220	2640	1720	1470	1630	1470	1120
16	2390	1650	3250	2920	2670	5020	2200	1450	1740	1020	2190	1170
17	2490	1720	3120	2020	2310	4110	2300	1640	1410	988	1720	1540
18	2750	1630	2560	1660	1420	3420	2430	1640	1820	1320	1460	2040
19	2430	1420	2490	1410	1680	3120	2230	1540	3470	890	1480	1710
20	2200	1160	2630	1800	1760	3440	2310	1560	1910	1020	1050	1670
21	2240	1520	2470	1730	1700	4110	2770	1220	1670	1060	1190	1560
22	2290	1910	1700	1700	1480	3760	2310	1440	1450	962	1460	1390
23	1630	1450	2210	1950	1880	3910	1990	1700	1640	643	836	1240
24	1520	1360	1890	1560	3270	3540	3370	1520	1880	743	1170	796
25	2330	894	2050	1520	8590	3320	4160	1660	1690	1030	1030	1090
26	4270	1870	1940	1710	5070	2640	3110	1760	2020	896	990	1250
27	4830	1050	2340	1540	3950	2580	2630	1940	2150	866	782	852
28	3640	1820	2000	1770	4480	2640	2280	1470	1940	899	737	988
29	2820	2430	2300	1880	---	2360	2480	1610	1860	785	1220	891
30	2340	2810	1970	1570	---	2600	2630	1650	1810	853	700	850
31	2600	---	1700	1350	---	3430	---	1670	---	851	1070	---
TOTAL	127940	53894	83100	54320	65240	126700	127480	63230	51920	37765	35154	41918
MEAN	4127	1796	2681	1752	2330	4087	4249	2040	1731	1218	1134	1397
MAX	23700	2810	7400	2920	8590	14800	20500	3810	3470	2580	2190	4300
MIN	1130	894	1660	1060	1360	2140	1990	1220	1120	643	700	663
CFSM	3.08	1.34	2.00	1.31	1.74	3.05	3.17	1.52	1.29	.91	.85	1.04
IN.	3.55	1.50	2.31	1.51	1.81	3.52	3.54	1.76	1.44	1.05	.98	1.16

CAL YR 1976 TOTAL 889996 MEAN 2432 MAX 23700 MIN 528 CFSM 1.82 IN 24.71
WTR YR 1977 TOTAL 868661 MEAN 2380 MAX 23700 MIN 643 CFSM 1.78 IN 24.12

03166800 GLADE CREEK AT GRAHAMS FORGE, VA

LOCATION.--Lat 36°55'51", long 80°54'02", Wythe County, Hydrologic Unit 05050001, on right downstream abutment of bridge on State Highway 629, 1.0 mi (1.6 km) southwest of Grahams Forge, and at mile 0.4 (0.6 km).

DRAINAGE AREA.--7.15 mi² (18.52 km²).

PERIOD OF RECORD.--May 1976 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,972 ft (600 m), from topographic map.

REMARKS.--Records fair except those for period of doubtful or no gage-height record, June 7 to July 7, which are poor. Recording rain gage at station. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,100 ft³/s (31.2 m³/s) June 16, 1976, gage height, 5.11 ft (1.558 m), from rating curve extended above 60 ft³/s (1.7 m³/s) on basis of slope-area measurement of peak flow; minimum, 0.03 ft³/s (<0.001 m³/s) Sept. 7, 1976, gage height, 1.36 ft (0.415 m), result of storage behind temporary dam; minimum daily, 0.07 ft³/s (0.002 m³/s) Sept. 1, 7-9, 12-14, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (2.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 24	0815	*114	3.23	*3.26	0.994	Apr. 4	2400	104	2.95	3.12	0.951
Apr. 4	2200	*114	3.23	3.17	.966						

Minimum daily discharge, 0.08 ft³/s (0.002 m³/s) Sept. 4-6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.14	.32	.32	.20	.18	.75	.36	.67	.22	.19	.11	.09
2	.13	.26	.23	.19	.18	.57	.31	.65	.19	.23	.16	.09
3	.11	.23	.20	.25	.19	.53	.66	.66	.18	.19	.25	.09
4	.10	.21	.19	.35	.19	.51	43	.71	.17	.18	.20	.08
5	.09	.19	.17	.34	.20	.51	38	.58	.16	.16	.15	.08
6	.09	.16	.38	.43	.20	.71	9.5	.38	.63	.15	.13	.08
7	2.6	.16	14	.33	.18	.67	5.2	.32	.21	.15	.13	.17
8	2.9	.15	2.8	.31	.16	.51	3.6	.28	.19	.16	.16	.28
9	11	.14	1.7	.25	.18	.66	2.8	.25	.17	.16	1.6	.21
10	1.5	.14	1.0	.21	.20	.60	2.3	.23	.17	.73	.33	.18
11	.73	.14	.93	.18	.35	.38	1.8	.21	.16	.90	.13	.15
12	.50	.23	1.3	.20	.54	.38	1.5	.20	.15	.78	.11	.16
13	.34	.19	1.0	.23	.97	8.1	1.1	.19	.15	.28	1.7	.13
14	.32	.17	.85	.30	.86	2.1	.87	.18	.22	.17	.22	.12
15	.27	.21	.78	.33	.57	1.2	.73	.17	.16	.15	.16	.11
16	.24	.26	.76	.35	.34	.92	.66	.17	.19	.13	.16	.73
17	.35	.25	.65	.25	.33	.88	.60	.16	.26	.12	.63	.79
18	.27	.23	.56	.22	.30	.62	.55	.16	.25	.11	.32	.73
19	.24	.21	.51	.24	.28	.58	.52	.16	.22	.11	.16	1.1
20	.35	.19	.56	.25	.25	1.2	.62	.15	.19	.11	.12	.27
21	.30	.17	.47	.28	.22	.68	.75	.15	.16	.15	.10	.15
22	.25	.15	.47	.25	6.9	.66	.56	.16	.17	.12	.10	.13
23	.22	.16	.52	.24	1.2	.68	.70	.15	.21	.10	.12	.12
24	.22	.16	.55	.22	16	.56	.77	.20	.22	.09	.16	.12
25	2.0	.13	.51	.24	1.3	.66	.59	.26	.25	.09	.13	.11
26	1.6	.13	.48	.24	.95	.62	.50	.26	.23	.10	.13	.11
27	.69	.15	.42	.24	1.1	.62	.65	.22	.22	.09	.16	.11
28	.45	.21	.42	.22	.97	.66	.67	.22	.20	.09	.13	.11
29	.36	.46	.36	.20	---	.38	.57	.19	.19	.15	.12	.10
30	.32	.36	.36	.19	---	.50	.69	.19	.19	.13	.12	.10
31	.41	---	.37	.17	---	.38	---	.21	---	.11	.10	---
TOTAL	28.75	6.03	33.80	7.92	33.29	27.62	120.27	7.95	6.05	6.36	7.78	6.78
MEAN	.93	.20	1.09	.26	1.19	.89	4.01	.26	.20	.20	.25	.23
MAX	11	.46	14	.43	16	8.1	43	.71	.63	.90	1.7	1.1
MIN	.09	.13	.17	.17	.16	.38	.31	.15	.15	.09	.10	.08
CFSM	.13	.03	.15	.04	.17	.12	.56	.04	.03	.03	.04	.03
IN.	.15	.03	.18	.04	.17	.14	.63	.04	.03	.03	.04	.04

WTR YR 1977 TOTAL 292.58 MEAN .80 MAX 43 MIN .08 CFSM .11 IN 1.52

KANAWHA RIVER BASIN

03166880 WEST SPRING AT NATIONAL FISH HATCHERY, NEAR GRAHAMS FORGE, VA

LOCATION.--Lat 36°56'05", long 80°54'19", Wythe County, Hydrologic Unit 05050001, 0.3 mi (0.5 km) upstream from Glade Creek, 0.3 mi (0.5 km) northwest of National Fish Hatchery, 0.4 mi (0.6 km) upstream from Reed Creek, and 1.0 mi (1.6 km) southwest of Grahams Forge.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1976 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,000 ft (610 m), from topographic map.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF RECORD.--July to September 1976: Maximum discharge during the period, 4.8 ft^3/s (0.14 m^3/s) July 1-31; maximum gage height, 21.37 ft (6.514 m) July 1-17; minimum discharge, 4.5 ft^3/s (0.13 m^3/s) Sept. 13, 17-30; minimum gage height, 21.30 ft (6.492 m) Sept. 19, 21-30.

Water year 1977: Maximum discharge, 6.4 ft^3/s (0.18 m^3/s) Apr. 24, May 3, gage height, 21.68 ft (6.608 m); minimum, 4.2 ft^3/s (0.12 m^3/s) Sept. 21-30; minimum gage height, 21.24 ft (6.474 m) Sept. 26-30.

DISCHARGE, IN CUBIC FEET PER SECOND, JULY TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										4.8	4.7	4.6
2										4.8	4.7	4.6
3										4.8	4.7	4.6
4										4.8	4.7	4.6
5										4.8	4.7	4.6
6										4.8	4.7	4.6
7										4.8	4.7	4.6
8										4.8	4.7	4.6
9										4.8	4.7	4.6
10										4.8	4.7	4.6
11										4.8	4.7	4.6
12										4.8	4.7	4.6
13										4.8	4.7	4.5
14										4.8	4.7	4.6
15										4.8	4.7	4.6
16										4.8	4.7	4.6
17										4.8	4.7	4.5
18										4.8	4.7	4.5
19										4.8	4.7	4.5
20										4.8	4.7	4.5
21										4.8	4.7	4.5
22										4.8	4.7	4.5
23										4.8	4.7	4.5
24										4.8	4.7	4.5
25										4.8	4.6	4.5
26										4.8	4.6	4.5
27										4.8	4.6	4.5
28										4.8	4.6	4.5
29										4.8	4.6	4.5
30										4.8	4.6	4.5
31										4.8	4.6	---
TOTAL										148.8	145.0	136.5
MEAN										4.80	4.68	4.55
MAX										4.8	4.7	4.6
MIN										4.8	4.6	4.5

03166880 WEST SPRING AT NATIONAL FISH HATCHERY, NEAR GRAHAMS FORGE, VA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	4.5	4.4	4.4	4.3	4.4	4.4	4.9	4.9	4.7	4.5	4.3
2	4.5	4.5	4.4	4.4	4.3	4.4	4.5	5.0	4.8	4.7	4.5	4.3
3	4.5	4.5	4.4	4.4	4.3	4.4	4.5	5.0	4.8	4.6	4.5	4.3
4	4.5	4.5	4.4	4.4	4.4	4.4	4.7	5.0	4.8	4.6	4.4	4.3
5	4.5	4.5	4.4	4.4	4.3	4.4	5.0	5.1	4.8	4.6	4.4	4.3
6	4.5	4.5	4.4	4.4	4.3	4.4	4.8	5.0	4.8	4.6	4.4	4.3
7	4.5	4.5	4.4	4.4	4.3	4.4	4.8	5.0	4.8	4.6	4.4	4.3
8	4.5	4.5	4.4	4.4	4.3	4.4	4.7	5.0	4.7	4.6	4.4	4.3
9	4.5	4.5	4.4	4.4	4.3	4.4	4.7	5.1	4.8	4.6	4.4	4.3
10	4.5	4.5	4.4	4.4	4.3	4.4	4.7	5.0	4.7	4.6	4.4	4.3
11	4.5	4.5	4.4	4.3	4.3	4.4	4.8	4.9	4.8	4.6	4.4	4.3
12	4.5	4.4	4.5	4.3	4.3	4.4	4.8	5.0	4.7	4.6	4.4	4.3
13	4.5	4.4	4.4	4.3	4.4	4.4	4.8	4.9	4.7	4.6	4.4	4.3
14	4.5	4.4	4.4	4.4	4.4	4.4	4.9	5.0	4.7	4.6	4.4	4.3
15	4.5	4.4	4.4	4.4	4.4	4.4	4.9	4.9	4.7	4.6	4.4	4.3
16	4.5	4.4	4.4	4.4	4.4	4.4	4.9	4.9	4.7	4.5	4.4	4.3
17	4.5	4.4	4.4	4.4	4.3	4.4	4.9	4.9	4.8	4.6	4.4	4.3
18	4.5	4.4	4.4	4.4	4.3	4.4	5.0	4.9	4.7	4.6	4.4	4.3
19	4.5	4.4	4.4	4.4	4.3	4.4	4.9	4.9	4.8	4.6	4.4	4.3
20	4.5	4.4	4.4	4.4	4.3	4.4	5.0	4.9	4.8	4.6	4.4	4.3
21	4.5	4.4	4.4	4.4	4.3	4.4	4.9	4.9	4.9	4.6	4.4	4.2
22	4.5	4.4	4.4	4.3	4.3	4.4	5.0	4.9	4.8	4.5	4.4	4.2
23	4.5	4.4	4.4	4.3	4.3	4.4	5.0	4.9	4.8	4.5	4.4	4.2
24	4.5	4.4	4.4	4.4	4.4	4.4	5.1	4.9	4.8	4.5	4.4	4.2
25	4.5	4.4	4.4	4.4	4.5	4.4	5.2	4.9	4.8	4.5	4.4	4.2
26	4.5	4.4	4.4	4.4	4.4	4.4	5.0	5.0	4.8	4.5	4.4	4.2
27	4.5	4.4	4.4	4.4	4.4	4.4	5.0	4.9	4.7	4.5	4.3	4.2
28	4.5	4.4	4.4	4.4	4.4	4.4	5.0	4.9	4.7	4.5	4.3	4.2
29	4.5	4.4	4.4	4.3	---	4.4	5.0	4.9	4.7	4.5	4.3	4.2
30	4.5	4.4	4.4	4.3	---	4.4	5.0	4.8	4.7	4.5	4.3	4.2
31	4.5	---	4.4	4.3	---	4.4	---	4.8	---	4.5	4.3	---
TOTAL	139.5	133.1	136.5	135.6	121.5	136.4	145.9	153.1	143.0	141.7	136.2	128.0
MEAN	4.50	4.44	4.40	4.37	4.34	4.40	4.86	4.94	4.77	4.57	4.39	4.27
MAX	4.5	4.5	4.5	4.4	4.5	4.4	5.2	5.1	4.9	4.7	4.5	4.3
MIN	4.5	4.4	4.4	4.3	4.3	4.4	4.4	4.8	4.7	4.5	4.3	4.2

WTR YR 1977 TOTAL 1650.5 MEAN 4.52 MAX 5.2 MIN 4.2

KANAWHA RIVER BASIN

03166880 WEST SPRING AT NATIONAL FISH HATCHERY, NEAR GRAHAMS FORGE, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)
JUN												
11...	--	--	0	130	10	26	15	.3	1.3	142	2.5	.6
SEP												
07...	218	13.5	0	120	9	25	15	.6	1.3	145	2.0	.8

DATE	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED NITRITE (NO2) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	TOTAL IRON (FE) (UG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)
JUN												
11...	.0	8.5	119	125	--	--	--	.03	.01	--	20	--
SEP												
07...	.1	8.5	118	123	.05	.22	.07	.07	.00	130	10	5

03166880 WEST SPRING AT NATIONAL FISH HATCHERY, NEAR GRAHAMS FORGE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)
JAN								
31...	4.3	218	12.0	0	120	8	25	15
MAY								
06...	5.0	--	13.5	0	130	12	26	15
JUL								
26...	4.5	--	13.5	5	120	18	25	15

DATE	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
JAN									
31...	.8	1.4	142	2.6	.5	.1	8.4	116	125
MAY									
06...	.3	1.5	140	2.4	1.0	.1	8.4	126	125
JUL									
26...	1.2	1.3	130	2.0	.5	.1	8.6	123	119

DATE	DISSOLVED NITRATE (N) (MG/L)	DISSOLVED NITRATE (NO3) (MG/L)	DISSOLVED NITRITE (NO2) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	TOTAL IRON (FE) (UG/L)	DISSOLVED IRON (FE) (UG/L)	TOTAL MANGANESE (MN) (UG/L)
JAN								
31...	.23	1.0	.00	.23	.00	130	10	0
MAY								
06...	.24	1.1	.00	.24	.01	--	0	--
JUL								
26...	.22	1.0	.00	.22	.00	--	10	--

03166900 BOILING SPRING AT NATIONAL FISH HATCHERY, NEAR GRAHAMS FORGE, VA

LOCATION.--Lat 36°55'50", long 80°53'47", Wythe County, Hydrologic Unit 05050001, 0.1 mi (0.2 km) off State Highway 629, 0.15 mi (0.24 km) upstream from Reed Creek, and 0.9 mi (1.4 km) southwest of Grahams Forge.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1976 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,980 ft (604 m), from topographic map.

REMARKS.--Records good. Diversion to Wytheville National Fish Hatchery by two pumps with capacities of 2.7 ft³/s (0.076 m³/s) and 1.9 ft³/s (0.054 m³/s). Pumpage is fairly constant. Monthly and yearly flows adjusted for pumpage on basis of fish hatchery pumpage records.

EXTREMES FOR PERIOD OF RECORD.--July to September 1976: Maximum daily discharge during the period, 5.5 ft³/s (0.16 m³/s) July 1-5, adjusted for pumpage; minimum daily, 5.2 ft³/s (0.15 m³/s) Sept. 3-30, adjusted for pumpage.

Water year 1977: Maximum daily discharge, 6.2 ft³/s (0.18 m³/s) Apr. 5, adjusted for pumpage; minimum daily, 5.0 ft³/s (0.14 m³/s) Sept. 15, 16, 21, 24-30, adjusted for pumpage.

DISCHARGE, IN CUBIC FEET PER SECOND, JULY TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										2.8	2.6	3.4
2										2.8	2.6	3.4
3										2.8	2.6	3.3
4										2.8	2.6	3.3
5										2.8	2.6	3.3
6										2.7	2.6	3.3
7										2.7	2.6	3.3
8										2.7	2.6	3.3
9										2.7	2.6	3.3
10										2.7	2.6	3.3
11										2.7	3.1	3.3
12										2.7	3.4	3.3
13										2.7	3.4	2.6
14										2.7	3.4	2.5
15										2.7	3.4	2.5
16										2.7	3.4	2.5
17										2.7	3.4	2.5
18										2.7	3.4	2.5
19										2.7	3.4	2.5
20										2.7	3.4	2.5
21										2.7	3.4	2.5
22										2.7	3.4	2.9
23										2.7	3.4	3.2
24										2.7	3.4	2.8
25										2.7	3.4	2.5
26										2.7	3.4	2.5
27										2.7	3.4	2.5
28										2.7	3.4	2.5
29										2.7	3.4	2.5
30										3.0	3.4	2.5
31										2.7	3.4	---
TOTAL	---	---	---	---	---	---	---	---	---	84.5	97.1	86.3
MEAN	---	---	---	---	---	---	---	---	---	2.73	3.13	2.88
MAX	---	---	---	---	---	---	---	---	---	3.0	3.4	3.4
MIN	---	---	---	---	---	---	---	---	---	2.7	2.6	2.5
(*)										2.7	2.2	2.4
MEAN‡										5.43	5.33	5.28

* Pumpage, equivalent in cubic feet per second, by Wytheville National Fish Hatchery.

‡ Adjusted for pumpage.

03166900 BOILING SPRING AT NATIONAL FISH HATCHERY, NEAR GRAHAMS FORGE, VA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	2.5	2.5	2.5	2.4	2.6	2.7	3.2	2.9	2.7	2.6	3.2
2	2.5	2.5	2.5	2.5	2.4	2.5	2.7	3.2	2.9	2.7	2.6	3.2
3	2.5	2.5	2.5	2.5	2.4	2.5	2.7	3.2	2.9	2.7	2.5	3.2
4	2.5	2.5	2.5	2.5	2.4	2.6	3.2	3.2	2.8	2.7	2.5	3.2
5	2.5	2.5	2.4	2.5	2.5	2.5	3.5	3.2	2.8	3.5	2.5	3.2
6	2.5	2.5	2.4	2.5	2.4	2.6	3.2	3.2	2.8	2.7	2.5	3.2
7	2.5	2.5	2.6	2.5	2.4	2.6	3.1	3.2	2.8	2.7	2.5	3.2
8	2.5	2.5	2.6	2.5	2.4	2.6	3.1	3.2	2.8	2.7	2.9	3.2
9	2.7	2.5	2.5	2.5	2.4	2.5	3.1	3.2	2.8	2.7	3.3	3.2
10	2.6	2.5	2.5	2.5	2.4	2.5	3.1	3.2	2.8	2.7	3.3	3.2
11	2.5	2.5	2.5	2.5	2.5	2.5	3.1	3.2	2.8	2.7	3.2	3.2
12	2.5	2.5	2.5	2.5	2.5	2.6	3.1	3.2	2.8	2.7	3.2	3.2
13	2.5	2.5	2.5	2.5	2.5	2.8	3.1	3.2	2.8	2.7	3.2	3.2
14	2.5	2.5	2.5	2.5	2.5	2.7	3.1	3.2	2.8	2.6	3.2	3.2
15	2.5	2.5	2.5	2.5	2.5	2.7	3.1	3.2	2.8	2.6	3.2	3.1
16	2.5	2.5	2.5	2.5	2.5	2.6	3.1	3.2	2.8	2.6	3.2	3.1
17	2.5	2.5	2.5	2.5	2.5	2.6	3.1	3.2	2.8	2.6	3.2	3.2
18	2.5	2.5	2.5	2.5	2.5	2.7	3.2	3.2	2.8	2.6	3.2	3.2
19	2.5	2.5	2.5	2.5	2.5	2.6	3.2	3.2	2.8	2.6	3.2	3.7
20	2.5	2.5	2.5	2.5	2.5	2.7	3.2	3.2	2.8	2.6	3.2	3.2
21	2.5	2.5	2.5	2.5	2.4	2.7	3.2	3.2	2.7	2.6	3.2	3.1
22	2.5	2.5	2.5	2.5	2.5	2.7	3.2	3.1	2.7	2.6	3.2	3.3
23	2.5	2.5	2.5	2.5	2.5	2.7	3.2	3.1	2.7	2.6	3.2	3.2
24	2.5	2.5	2.5	2.5	2.7	2.7	3.2	3.1	2.7	2.6	3.2	3.1
25	2.5	2.5	2.5	2.5	2.7	2.7	3.2	3.1	2.7	2.6	3.2	3.1
26	2.5	2.5	2.5	2.5	2.6	2.7	3.2	3.1	2.7	2.6	3.2	3.1
27	2.5	2.5	2.5	2.5	2.6	2.7	3.2	3.0	2.7	2.6	3.2	3.1
28	2.6	2.5	2.5	2.5	2.6	2.7	3.2	3.0	2.7	2.6	3.2	3.1
29	2.5	2.5	2.5	2.5	---	2.7	3.2	3.0	2.7	2.6	3.2	3.1
30	2.5	2.4	2.5	2.5	---	2.7	3.2	3.0	2.7	2.6	3.2	3.1
31	2.5	---	2.5	2.5	---	2.7	---	2.9	---	2.6	3.2	---
TOTAL	77.9	74.9	77.5	77.5	69.7	81.7	93.7	97.6	83.3	82.7	94.4	95.6
MEAN	2.51	2.50	2.50	2.50	2.49	2.64	3.12	3.15	2.78	2.67	3.05	3.19
MAX	2.7	2.5	2.6	2.5	2.7	2.8	3.5	3.2	2.9	3.5	3.3	3.7
MIN	2.5	2.4	2.4	2.5	2.4	2.5	2.7	2.9	2.7	2.6	2.5	3.1
(*)	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.1	1.9
MEAN‡	5.21	5.20	5.20	5.20	5.19	5.34	5.82	5.85	5.48	5.37	5.15	5.09

WTR YR 1977 TOTAL 1006.5 MEAN 2.76 MAX 3.7 MIN 2.4 MEAN‡ 5.36

* Pumpage, equivalent in cubic feet per second, by Wytheville National Fish Hatchery.
‡ Adjusted for pumpage.

03166900 BOILING SPRING AT NATIONAL FISH HATCHERY, NEAR GRAHAMS FORGE, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)
JUN								
11...	5.5	--	--	0	120	9	23	14
SEP								
07...	5.2	203	12.5	0	120	8	23	14

DATE	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SIO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)
JUN									
11...	.7	1.4	129	2.8	.8	.0	8.8	108	115
SEP									
07...	.6	1.4	131	2.1	.7	.1	8.6	111	115

DATE	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED NITRATE (NO3) (MG/L)	DIS- SOLVED NITRITE (NO2) (MG/L)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS- SOLVED ORTHO. PHOS- PHORUS (P) (MG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)
JUN								
11...	--	--	--	.02	.00	--	20	--
SEP								
07...	.04	.20	.03	.05	.00	100	0	0

03166900 BOILING SPRING AT NATIONAL FISH HATCHERY, NEAR GRAHAMS FORGE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)
JAN								
31...	5.2	200	13.0	0	120	7	23	14
MAY								
06...	5.9	--	13.0	0	120	13	25	14
JUL								
26...	5.3	--	13.0	5	120	8	23	14

DATE	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)
JAN									
31...	.8	1.5	132	2.2	.5	.1	9.7	107	118
MAY									
06...	.7	1.7	130	1.6	1.1	.1	8.8	119	118
JUL									
26...	.6	1.4	130	11	.7	.1	8.8	111	125

DATE	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED NITRITE (NO2) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	TOTAL IRON (FE) (UG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)
JAN								
31...	.22	1.0	.00	.22	.01	20	10	10
MAY								
06...	.23	1.0	.00	.23	.01	--	10	--
JUL								
26...	.21	.90	.00	.21	.01	--	20	--

03167000 REED CREEK AT GRAHAMS FORGE, VA

LOCATION.--Lat 36°56'22", long 80°53'13", Wythe County, Hydrologic Unit 05050001, on left bank 20 ft (6 m) downstream from highway bridge at Grahams Forge, 2.2 mi (3.5 km) downstream from Glade Creek, and at mile 7.3 (11.7 km).

DRAINAGE AREA.--247 mi² (640 km²).

PERIOD OF RECORD.--July 1908 to September 1916, January 1927 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1235: 1912-13, 1915-16. WSP 1275: 1911, 1927-28(M), 1930-34(M). WSP 1705: 1913(M), 1916(M), 1957 calendar year runoff. WSP 1725: 1915 calendar year runoff.

GAGE.--Water-stage recorder. Datum of gage is 1,924.65 ft (586.633 m) above mean sea level. Prior to Oct. 1, 1916, nonrecording gage at same site at datum 0.68 ft (0.207 m) lower. Feb. 3, 1927, to Oct. 28, 1934, and June 11, 1974, to July 22, 1975, nonrecording gage, at present site and datum.

REMARKS.--Records good. Occasional diurnal fluctuation at low flow caused by mills above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--58 years, 266 ft³/s (7.533 m³/s), 14.62 in/yr (371 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,500 ft³/s (496 m³/s) July 16, 1916, gage height, 11.4 ft (3.47 m), present datum, from floodmarks, from rating curve extended above 7,600 ft³/s (220 m³/s) on basis of velocity-area study and slope-area measurement at gage heights 11.4 ft (3.47 m) and 10.01 ft (3.051 m), respectively; minimum observed, about 5 ft³/s (0.1 m³/s) Dec. 22, 1909, gage height, 0.49 ft (0.149 m), present datum, result of freezeup; minimum daily, 22 ft³/s (0.62 m³/s) Jan. 30, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,300 ft³/s (65 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	2200	2320	65.7	4.08	1.244	Apr. 5	0225	*14000	396	10.01	3.051
Feb. 25	0030	2840	80.4	4.43	1.350						

Minimum discharge, 51 ft³/s (1.44 m³/s) Aug. 30, gage height, 1.34 ft (0.408 m); minimum daily, 66 ft³/s (1.87 m³/s) Aug. 8, 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	247	283	169	120	100	496	220	205	116	109	76	90
2	289	247	186	100	100	400	212	215	119	119	74	75
3	172	224	169	130	105	343	256	210	109	142	74	69
4	131	209	156	180	105	313	3600	220	104	111	74	73
5	111	190	150	201	110	307	10600	230	99	101	74	83
6	100	172	144	193	110	289	2660	280	101	94	70	80
7	103	160	970	190	100	283	1460	286	142	92	70	89
8	505	150	1070	166	90	251	1090	245	135	87	66	111
9	1540	144	577	130	100	233	860	205	116	84	72	130
10	1170	138	400	110	110	220	721	193	119	84	94	110
11	422	138	325	100	169	212	622	182	114	171	70	94
12	271	153	313	105	236	204	523	154	106	148	70	84
13	212	153	325	120	349	1400	460	161	104	116	78	79
14	179	141	295	150	514	970	412	154	106	104	80	75
15	160	141	277	176	532	640	380	148	111	94	78	74
16	147	150	271	182	445	478	345	142	109	87	78	76
17	150	156	251	131	325	385	317	138	106	84	76	85
18	153	156	224	120	271	337	298	132	101	80	92	103
19	138	156	209	130	242	307	280	132	99	78	89	92
20	134	153	205	140	242	343	262	127	96	78	78	138
21	147	147	220	150	205	349	268	124	94	78	74	94
22	150	144	182	140	201	343	245	119	94	82	70	82
23	144	138	220	130	343	331	240	119	119	96	72	76
24	141	131	190	120	1300	301	242	116	138	82	72	74
25	182	128	186	130	1760	271	262	119	161	80	72	73
26	1360	125	197	135	910	251	230	127	186	82	70	71
27	703	128	179	130	766	238	225	124	148	78	68	70
28	400	131	182	120	658	224	210	116	129	76	68	70
29	289	176	182	110	---	216	230	111	124	76	66	71
30	242	201	156	100	---	224	230	109	122	82	66	69
31	277	---	209	95	---	247	---	109	---	80	72	---
TOTAL	10369	4863	8789	4234	10500	11411	28210	5052	3527	2955	2303	2562
MEAN	334	162	284	137	375	368	940	163	118	95.3	74.3	85.4
MAX	1540	283	1070	201	1760	1400	10600	286	186	171	94	138
MIN	100	125	144	95	90	204	210	109	94	76	66	69
CFSM	1.35	.66	1.15	.56	1.52	1.49	3.81	.66	.48	.39	.30	.35
IN.	1.56	.73	1.32	.64	1.58	1.72	4.25	.76	.53	.45	.35	.39

CAL YR 1976 TOTAL 84916 MEAN 232 MAX 2690 MIN 65 CFSM .94 IN 12.79
WTR YR 1977 TOTAL 94775 MEAN 260 MAX 10600 MIN 66 CFSM 1.05 IN 14.27

03167500 BIG REED ISLAND CREEK NEAR ALLISONIA, VA

LOCATION.--Lat 36°53'20", long 80°43'40", Pulaski County, Hydrologic Unit 05050001, on left bank 700 ft (213 m) downstream from highway bridge, 3.5 mi (5.6 km) southeast of Allisonia, 4 mi (6 km) upstream from Little Reed Island Creek, and at mile 4.5 (7.2 km).

DRAINAGE AREA.--278 mi² (720 km²).

PERIOD OF RECORD.--August 1908 to September 1916, April 1939 to current year.

REVISED RECORDS.--WSP 1033: 1939(P), 1940, 1941-43(P). WSP 1305: 1912(M). WSP 1625: 1940, 1945(M), 1947, 1951, 1952(M).

GAGE.--Water-stage recorder. Datum of gage is 1,902.74 ft (579.955 m) above mean sea level. Prior to Sept. 30, 1916, nonrecording gage at site 4 mi (6 km) downstream at different datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--46 years, 397 ft³/s (11.24 m³/s), 19.39 in/yr (493 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,500 ft³/s (411 m³/s) Sept. 30, 1959, gage height, 12.54 ft (3.822 m), from rating curve extended above 6,000 ft³/s (170 m³/s) on basis of slope-area measurement of peak flow; minimum, 63 ft³/s (1.78 m³/s) Jan. 20, 1971, gage height, 1.63 ft (0.497 m), result of freezeup; minimum daily, 84 ft³/s (2.38 m³/s) Sept. 17, 1956, Sept. 23-25, 1963.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,500 ft³/s (99 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 8	0800	5460	155	7.24	2.207	Feb. 24	1600	3620	103	5.98	1.823
Oct. 9	0800	*9030	256	9.50	2.896	Mar. 13	1200	8560	242	9.24	2.816
Dec. 7	1000	4080	116	6.31	1.923	Apr. 5	0930	5180	147	7.05	2.149

Minimum discharge, 108 ft³/s (3.06 m³/s) Jan. 1, gage height, 1.89 ft (0.576 m), result of freezeup; minimum daily, 127 ft³/s (3.60 m³/s) Aug. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	402	555	420	200	190	415	425	391	425	254	130	171
2	274	470	420	190	190	368	410	391	302	230	127	234
3	242	440	395	250	200	346	445	382	266	223	138	165
4	217	425	366	350	200	625	1130	485	246	202	162	165
5	197	400	377	410	210	677	3500	455	234	195	165	174
6	190	382	382	382	210	780	1360	445	246	189	230	168
7	428	377	2480	364	200	760	836	386	332	183	162	246
8	4100	368	1080	314	170	533	677	368	254	177	138	670
9	6380	355	646	260	190	455	588	346	262	171	189	511
10	1450	359	560	220	220	415	544	332	270	171	364	350
11	677	356	516	190	330	395	516	328	230	262	226	250
12	511	391	628	200	450	386	495	323	226	314	216	195
13	440	382	634	230	700	6270	465	319	226	346	395	180
14	391	350	527	300	900	1400	450	310	246	230	377	174
15	354	364	511	350	1000	796	440	306	420	189	405	171
16	366	377	593	360	860	677	435	298	306	171	246	212
17	544	350	533	300	684	588	420	298	319	165	230	377
18	516	346	490	230	593	505	415	294	350	156	286	262
19	400	337	455	250	540	470	435	298	266	153	250	223
20	616	332	456	270	480	909	455	286	238	150	198	298
21	876	323	495	230	400	712	420	274	223	141	180	258
22	538	319	359	270	380	658	410	270	216	147	230	202
23	445	306	425	250	772	622	415	270	350	162	209	186
24	430	306	386	230	1400	533	780	266	341	153	195	180
25	740	314	386	250	868	485	549	298	337	147	195	174
26	1940	310	460	260	495	455	440	355	302	150	177	174
27	852	332	400	250	655	630	420	319	258	141	174	189
28	599	355	415	230	522	420	405	282	278	130	171	174
29	516	909	400	210	---	415	440	266	294	130	162	162
30	475	622	319	200	---	480	405	294	250	147	156	159
31	624	---	400	190	---	522	---	306	---	144	162	---
TOTAL	26719	11806	16910	8230	13804	21282	19125	10241	8513	5723	6645	7054
MEAN	862	394	545	265	493	687	638	330	284	185	214	235
MAX	6380	909	2480	410	1400	6270	3500	485	425	346	405	670
MIN	190	306	319	190	170	346	405	266	216	130	127	159
CFSM	3.10	1.42	1.96	.95	1.77	2.47	2.30	1.19	1.02	.67	.77	.85
IN.	3.58	1.58	2.26	1.10	1.85	2.85	2.56	1.37	1.14	.77	.89	.94

CAL YR 1976 TOTAL 156773 MEAN 428 MAX 6380 MIN 139 CFSM 1.54 IN 20.98
WTR YR 1977 TOTAL 156057 MEAN 428 MAX 6380 MIN 127 CFSM 1.54 IN 20.88

03168000 NEW RIVER AT ALLISONIA, VA

LOCATION.--Lat 36°56'15", long 80°44'45", Pulaski County, Hydrologic Unit 05050001, on left bank 0.2 mi (0.3 km) downstream from Big Reed Island Creek and 0.5 mi (0.8 km) upstream from Allisonia.

DRAINAGE AREA.--2,202 mi² (5,703 km²).

PERIOD OF RECORD.--September 1929 to current year.

REVISED RECORDS.--WSP 783: Drainage area. WSP 823: 1936. WSP 1305: 1933(M).

GAGE.--Water-stage recorder. Datum of gage is 1,848.36 ft (563.380 m) above mean sea level.

REMARKS.--Records good. Large diurnal fluctuation and some regulation by powerplant 25 mi (40 km) above station. Corps of Engineers gage-height telemeter at station. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--48 years, 3,152 ft³/s (89.26 m³/s), 19.44 in/yr (494 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 185,000 ft³/s (5,240 m³/s) Aug. 14, 1940, gage height, 23.42 ft (7.138 m), from rating curve extended above 52,000 ft³/s (1,500 m³/s) on basis of flood records for other stations on New River; minimum, 412 ft³/s (11.7 m³/s) Sept. 7, 1930, gage height, 0.47 ft (0.143 m); minimum daily 453 ft³/s (12.8 m³/s) Sept. 6, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 17,500 ft³/s (500 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1245	44700	1270	9.61	2.929	Apr. 5	1600	*52600	1490	10.70	3.261
Mar. 13	1615	31700	898	7.73	2.356						

Minimum discharge, 802 ft³/s (22.7 m³/s) Aug. 30, 31, gage height, 1.01 ft (0.308 m); minimum daily, 1,010 ft³/s (28.6 m³/s) Aug. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3010	4150	3360	2150	1990	5870	4430	3710	2320	2290	1180	1530
2	3080	3610	2700	1780	1970	6570	4290	3470	2710	1780	1160	1430
3	2640	3560	2580	2270	2020	3700	3990	3480	2440	2700	1010	1280
4	2130	2880	2630	2760	2080	3640	11000	3800	1800	2150	1270	1200
5	1860	2920	2570	3070	2350	4510	44100	5020	1880	2110	1160	1400
6	1840	2560	2540	2790	2320	5350	26100	5020	1960	1700	1590	1370
7	1670	2550	9750	3020	1940	6590	12400	4020	2230	1600	1510	1430
8	15700	2460	11700	2630	1920	5550	9150	3730	2750	1590	1130	2710
9	38100	2670	7120	2250	1990	4410	7320	3590	2220	1250	1240	5010
10	21200	2420	5270	2240	1960	3930	6240	3320	2110	1370	1490	4700
11	5740	2400	4290	2080	2330	3570	5410	2810	1760	1980	2000	2590
12	4270	2570	4320	1870	2720	3330	5110	2800	1820	2250	1550	2130
13	4580	2600	5000	2230	3400	14800	4610	2720	1950	3390	1890	1720
14	3770	2300	4390	2310	3450	21200	4160	2640	1840	2760	1820	1490
15	3270	2650	4110	3810	3470	10500	4070	2460	2200	2130	2410	1520
16	2740	2430	4850	4180	3400	7320	3790	2520	2200	1510	2430	1500
17	3360	2400	4510	3040	2980	6070	3690	2360	2220	1390	2430	2050
18	3970	2340	4040	2250	2600	5110	3750	2380	2120	1630	1870	2510
19	3250	2410	3640	2420	2580	4480	3270	2170	4320	1330	2140	2250
20	3470	1990	3580	2600	2510	5740	3570	2270	2560	1380	1580	2000
21	3690	2140	3490	2450	2400	4640	3870	1930	2290	1330	1510	2190
22	3560	2420	2880	2560	2080	4820	3560	1990	2040	1400	1430	1860
23	2800	2070	3000	2410	2490	5790	3200	2030	2210	1220	1390	1660
24	2860	2070	2670	2100	5970	5200	4770	2350	2530	1060	1460	1290
25	3610	1830	2440	2310	13400	4420	5810	2290	2360	1340	1580	1340
26	4070	2250	2060	2470	8080	3940	4460	2350	2690	1300	1460	1560
27	7780	1960	3240	2200	4100	3860	3840	2780	2770	1200	1140	1220
28	5510	2300	2470	2600	6520	3540	3380	2350	2540	1180	1270	1260
29	4280	3940	3100	2700	---	3500	3730	2210	2510	1140	1450	1420
30	3750	4150	2360	2040	---	3730	3960	2140	2260	1280	1120	1190
31	3980	---	2460	1860	---	4770	---	2410	---	1180	1200	---
TOTAL	190350	79170	124590	78100	97920	187300	212110	88370	69540	51920	48760	57030
MEAN	6140	2639	4019	2519	3497	6042	7070	2843	2318	1675	1572	1901
MAX	38100	4150	11700	4180	13400	21200	44100	5020	4320	3390	2430	5010
MIN	1670	1830	2360	1780	1890	3330	3200	1930	1760	1060	1010	1190
CFSM	2.79	1.20	1.83	1.14	1.59	2.74	3.21	1.31	1.05	.76	.71	.86
IN.	3.22	1.34	2.10	1.32	1.65	3.16	3.58	1.51	1.17	.88	.82	.96

CAL YR 1976 TOTAL 1330565 MEAN 3635 MAX 38100 MIN 985 CFSM 1.65 IN 22.44
WTR YR 1977 TOTAL 1286140 MEAN 3524 MAX 44100 MIN 1010 CFSM 1.60 IN 21.73

03169000 CLAYTOR RESERVOIR NEAR RADFORD, VA

LOCATION.--Lat 37°04'28", long 80°35'05", Pulaski County, Hydrologic Unit 05050001, at Claytor Dam on New River, 0.5 mi (0.8 km) upstream from Little River, and 5.5 mi (8.8 km) upstream from Radford.

DRAINAGE AREA.--2,382 mi² (6,169 km²).

PERIOD OF RECORD.--May 1939 to current year (monthly figures only).

REVISED RECORDS.--WSP 2108: 1961-65 monthend contents and change in contents.

GAGE.--Water-stage recorder. Datum of gage is at approximately mean sea level (levels by Appalachian Power Co.). Prior to Sept. 11, 1943, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by gravity overflow concrete dam. Spillway with crest at elevation 1,818.5 ft (554.28 m) is equipped with 9 lift gates 30 ft (9.1 m) high by 50 ft (15.2 m) wide. Dam completed and storage began May 22, 1939; water in reservoir reached minimum pool elevation in January 1940. Total level-pool capacity at elevation 1,847.0 ft (562.97 m), 1.5 ft (0.46 m) below top of gates, is 230,100 acre-ft (284 hm³) of which about 100,000 acre-ft (123 hm³) is controlled storage above minimum pool elevation of 1,820.0 ft (554.74 m). Reservoir is used for hydroelectric power and recreation.

COOPERATION.--Records furnished by Appalachian Power Co.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1844.96	221100	
Oct. 31	1844.40	218700	-2400
Nov. 30	1840.30	201100	-17600
Dec. 31	1844.89	220800	+19700
CAL YR 1976			+900
Jan. 31	1845.37	222800	+2000
Feb. 28	1845.38	222900	+100
Mar. 31	1844.30	218200	-4700
Apr. 30	1844.70	219900	+1700
May 31	1845.02	221300	+1400
June 30	1844.90	220800	-500
July 31	1845.30	222500	+1700
Aug. 31	1845.50	223400	+900
Sept. 30	1843.28	213900	-9500
WTR YR 1977			-7200

03170000 LITTLE RIVER AT GRAYSONTON, VA

LOCATION.--Lat 37°02'15", long 80°33'25", Pulaski County, Hydrologic Unit 05050001, on left bank at upstream side of highway bridge at Snowville, 0.5 mi (0.8 km) southeast of Graysonton, 7 mi (11 km) south of Radford, and at mile 8.6 (13.8 km).

DRAINAGE AREA.--300 mi² (777 km²).

PERIOD OF RECORD.--October 1928 to current year.

REVISED RECORDS.--WSP 823: 1929-36. WSP 1143: 1945. WSP 1305: 1929(M). WSP 1555: Drainage area (at site used 1928-41). WSP 1625: 1951(M). WSP 1725: 1936(M).

GAGE.--Water-stage recorder. Datum of gage is 1,816.04 ft (553.529 m) above mean sea level. Prior to Nov. 20, 1931, nonrecording gage at bridge 1.0 mi (1.6 km) downstream at datum 17.99 ft (5.483 m) lower. Nov. 20, 1931, to Nov. 12, 1941, water-stage recorder 1.2 mi (1.9 km) downstream at datum 20.58 ft (6.273 m) lower.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--49 years, 359 ft³/s (10.17 m³/s), 16.25 in/yr (413 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,800 ft³/s (646 m³/s) June 21, 1972, gage height, 13.40 ft (4.084 m), from rating curve extended above 16,000 ft³/s (450 m³/s) on basis of slope-area measurements at gage heights 12.76 ft (3.889 m) and 13.40 ft (4.084 m); minimum, 21 ft³/s (0.59 m³/s) Feb. 22, 1942, result of freezeup; minimum daily, 50 ft³/s (1.42 m³/s) Sept. 21, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft³/s (85 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1435	*7190	204	6.55	1.996	Mar. 13	1800	5460	155	5.51	1.679
Dec. 7	1530	3620	103	4.28	1.305	Apr. 5	1035	7030	199	6.46	1.969

Minimum discharge, 84 ft³/s (2.38 m³/s) Aug. 9, gage height, 0.85 ft (0.259 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	363	467	323	140	160	350	337	361	267	201	104	208
2	263	376	320	150	160	315	320	336	258	197	95	195
3	222	366	300	220	170	296	351	331	235	187	92	137
4	221	331	272	300	170	301	1860	368	216	175	91	160
5	176	311	276	314	180	521	5500	455	202	167	91	213
6	156	296	269	300	180	506	1990	703	198	162	108	179
7	182	286	2020	265	170	623	981	546	267	157	121	152
8	1580	276	1100	233	160	453	762	436	251	151	98	290
9	5290	263	547	210	160	383	418	377	226	144	87	464
10	1554	263	496	180	180	350	553	361	232	139	190	363
11	596	282	510	160	300	332	517	326	219	157	152	226
12	623	293	552	170	400	331	489	312	201	211	133	155
13	368	300	437	200	500	2500	461	301	197	221	125	149
14	306	270	442	250	485	1410	440	290	196	188	169	163
15	273	270	451	280	318	703	428	288	355	163	152	137
16	256	262	476	300	280	560	410	270	316	146	144	140
17	313	273	432	250	265	462	390	263	295	135	151	240
18	436	265	396	190	253	425	376	256	370	128	187	191
19	303	280	371	219	256	401	402	249	286	123	158	175
20	429	253	364	230	280	473	422	244	232	120	131	171
21	942	267	421	250	280	786	461	286	211	117	121	179
22	506	262	360	230	280	576	418	257	198	113	115	146
23	382	233	362	210	290	497	395	239	280	119	142	137
24	365	216	328	190	570	493	443	231	439	130	159	136
25	563	266	320	200	1020	437	469	236	365	123	167	131
26	2230	235	401	210	696	400	395	269	316	116	136	128
27	857	266	362	219	627	376	367	300	266	113	128	128
28	557	260	360	190	433	362	356	267	251	106	126	125
29	469	507	334	180	---	357	380	238	266	99	117	122
30	399	530	229	170	---	365	368	269	221	101	122	119
31	469	---	324	150	---	396	---	201	---	105	425	---
TOTAL	21734	8999	14310	6816	8815	16965	22016	9882	7791	4517	4222	5407
MEAN	701	300	462	220	315	547	734	319	260	146	136	180
MAX	5290	547	2020	319	1020	2500	5500	703	439	221	425	464
MIN	156	216	220	159	160	296	320	231	196	99	87	119
CFSM	2.34	1.00	1.54	.73	1.05	1.82	2.45	1.06	.87	.49	.45	.60
IN.	2.70	1.12	1.77	.85	1.09	2.10	2.73	1.23	.97	.56	.52	.67

CAL YR 1976 TOTAL 124553 MEAN 340 MAX 5290 MIN 60 CFSM 1.13 IN 15.44
WTR YR 1977 TOTAL 131444 MEAN 360 MAX 5500 MIN 87 CFSM 1.20 IN 16.30

03171000 NEW RIVER AT RADFORD, VA

LOCATION.--Lat 37°08'30", long 80°34'10", Pulaski County, Hydrologic Unit 05050001, on left bank 2,000 ft (610 m) downstream from bridge on U.S. Highway 11 at Radford, 5 mi (8 km) downstream from Little River, and 5.5 mi (8.8 km) downstream from Claytor Dam.

DRAINAGE AREA.--2,748 mi² (7,117 km²).

PERIOD OF RECORD.--October 1907 to September 1915, August 1939 to current year. Records for August 1898 to September 1907, published in WSP 27, 36, 48, 65, 83, 98, 128, 169, 205, 243, and 536, are unreliable and should not be used. Gage-height records collected at same site since 1895 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 873: Drainage area. WSP 953: 1940-41. WSP 1305: 1908-12. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 1,712.16 ft (521.866 m) above mean sea level. Prior to Aug. 30, 1939, nonrecording gage at highway bridge 2,000 ft (610 m) upstream at datum 0.85 ft (0.259 m) lower.

REMARKS.--Records good. Flow regulated since 1939 by Claytor Reservoir (station 03169000). Some additional regulation at low flow by dam and powerplant on Little River. Corps of Engineers gage-height telemeter at station. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--46 years, 3,807 ft³/s (107.8 m³/s), 18.81 in/yr (478 mm/yr), adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 218,000 ft³/s (6,170 m³/s) Aug. 14, 1940, gage height, 35.96 ft (10.961 m), from rating curve extended above 76,000 ft³/s (2,200 m³/s) on basis of records for other stations on New River and flow over Claytor Dam, computed by Appalachian Power Company; minimum, 165 ft³/s (4.67 m³/s) Aug. 25, 27, 1944, gage height, 1.08 ft (0.329 m); minimum daily, 550 ft³/s (15.6 m³/s) Aug. 22, 1911.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 16, 1916, reached a stage of 35.7 ft (10.88 m), discharge, 200,000 ft³/s (5,660 m³/s), at site and datum used by Geological Survey 1907-15, from reports of the National Weather Service.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 60,000 ft³/s (1,700 m³/s) Apr. 5, gage height, 16.46 ft (5.017 m); minimum, 314 ft³/s (8.89 m³/s) July 17, gage height, 1.38 ft (0.421 m); minimum daily, 752 ft³/s (21.3 m³/s) July 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6400	4760	4300	1210	2210	5400	6500	3150	2700	2670	1320	1060
2	2960	4350	3900	979	2330	5300	5370	4350	3050	1690	1130	2070
3	1660	4230	3500	3260	2440	5390	4380	3800	2900	1070	430	1550
4	2270	4400	2770	3090	2150	5340	10500	4050	2630	3360	1060	810
5	2000	4170	2390	3110	1090	2040	49600	6530	1570	3440	1390	986
6	2010	2550	3120	4190	2280	6460	30300	5910	2120	2460	437	1750
7	4410	3120	11500	4650	2490	6620	14500	5240	2620	2470	422	2170
8	19100	4510	17400	2740	2180	6780	10700	3150	3560	2310	1400	6590
9	41300	3380	10400	1120	2360	5670	9080	5750	2700	1110	1460	6180
10	22100	3340	4430	4420	3550	6230	8470	4430	3670	915	2190	5430
11	11700	4230	4600	3030	2490	3350	6960	4060	1460	2070	2490	940
12	8700	3460	4930	4060	2360	2180	6090	2810	1010	2540	2080	2860
13	6740	3750	5300	2550	1740	15600	5080	2550	2680	3230	1450	2300
14	5760	2500	3970	2400	4980	22600	5700	1930	2420	3590	1200	1910
15	4370	3200	4050	1220	5120	12700	5150	1780	2600	3690	4430	1500
16	2170	3000	4180	1350	4990	10600	3960	3800	2690	1020	3460	2370
17	2030	4000	5200	5410	4670	9560	4430	2650	2990	752	2480	1080
18	4010	4800	3030	3610	3320	6210	4920	2810	2430	2580	2460	1020
19	5160	3000	1760	3080	1960	4920	4030	2820	3050	2500	3460	1900
20	4320	2800	5270	2440	1040	5430	3530	2020	3090	1560	1720	2350
21	4260	2600	4000	2110	3230	6610	4220	2060	2790	1400	431	2380
22	7350	2900	3480	994	2470	4160	4520	2100	2650	1490	2220	2540
23	1630	3000	3760	1140	2270	6050	4710	3570	3540	977	1700	2240
24	1240	2500	1710	2360	4670	4410	5260	3670	4370	826	1630	970
25	7060	2800	1170	2270	11700	3070	4720	3040	3770	1620	1710	860
26	12700	2300	2530	2510	11600	5850	5400	3760	1240	1540	1410	2520
27	9290	2600	3400	3480	6850	2150	5000	3050	2730	1720	470	2500
28	6320	1800	4140	3370	5720	4870	3890	1860	3480	919	700	2560
29	4910	5000	4630	1140	---	4380	3760	1180	2750	1310	1470	2670
30	5350	4700	3600	1520	---	5060	5300	3130	2050	952	1100	3440
31	3970	---	2560	2410	---	5660	---	3510	---	903	1360	---
TOTAL	223540	103450	138640	81823	107020	205660	245210	105760	82820	58604	55596	70411
MEAN	7211	3448	4472	2639	3822	6634	8174	3411	2761	1890	1793	2347
MAX	41300	5000	17400	5410	11700	22600	49600	6530	4370	3690	4430	6590
MIN	1240	1800	1170	979	1040	2150	3530	1180	1010	752	700	810
(*)	-39	-295	+320	+33	+1	-75	+29	+22	-9	+20	+14	-160
MEAN#	7172	3153	4792	2672	3823	6559	8203	3433	2752	1910	1807	2187
CFSM#	2.61	1.15	1.74	.97	1.39	2.39	2.98	1.25	1.00	.70	.66	.80
IN#	3.01	1.28	2.01	1.12	1.45	2.76	3.34	1.44	1.12	.81	.76	.89

CAL YR 1976 TOTAL 1530359 MEAN 4181 MAX 43300 MIN 821 MEAN# 4182 CFSM# 1.52 IN# 20.75
WTR YR 1977 TOTAL 1478496 MEAN 4051 MAX 49600 MIN 752 MEAN# 4041 CFSM# 1.47 IN# 19.98

* Change in contents, equivalent in cubic feet per second, in Claytor Reservoir; furnished by Appalachian Power Co.
# Adjusted for change in contents.

03173000 WALKER CREEK AT BANE, VA

LOCATION.--Lat 37°16'05", long 80°42'35", Giles County, Hydrologic Unit 05050002, on left bank at Bane, 0.2 mi (0.3 km) downstream from bridge on State Highway 100, 0.2 mi (0.3 km) downstream from Sugar Run, and at mile 7.9 (12.7 km).

DRAINAGE AREA.--305 mi² (790 km²).

PERIOD OF RECORD.--March 1938 to current year.

REVISED RECORDS.--WSP 1143: 1939(M), 1940, 1944, 1948. WSP 1305: 1938(M).

GAGE.--Water-stage recorder. Datum of gage is 1,665.92 ft (507.772 m) above mean sea level. Prior to Aug. 1, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period of no gage-height record, Mar. 18 to Apr. 13, which are fair. Sev- eral observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--39 years, 323 ft³/s (9.147 m³/s), 14.38 in/yr (365 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,900 ft³/s (479 m³/s) Apr. 5, 1977, gage height, 16.69 ft (5.087 m), from rating curve extended above 7,200 ft³/s (200 m³/s) on basis of slope-area measurement at gage height 16.50 ft (5.029 m); minimum, 15 ft³/s (0.42 m³/s) Dec. 21, 1958, gage height, 2.42 ft (0.738 m), result of freezeup; minimum daily, 24 ft³/s (0.68 m³/s) Sept. 27, 28, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in September 1878 reached a stage of about 23.5 ft (7.2 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft³/s (110 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1800	4730	134	9.67	2.947	Apr. 5	Unknown	*16900	479	16.69	5.087
Feb. 24	2230	4630	131	9.59	2.923						

Minimum discharge, 43 ft³/s (1.22 m³/s) Aug. 7, 8, 9, 10, Sept. 29, 30, gage height, 2.89 ft (0.881 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	166	474	261	120	105	737	200	221	90	91	55	52
2	237	413	270	119	108	577	190	226	86	82	50	64
3	150	304	237	120	107	466	250	240	87	78	48	69
4	144	325	210	150	113	409	5000	246	82	73	44	64
5	98	260	166	200	121	401	9000	242	77	68	46	68
6	76	246	176	200	116	366	3600	362	77	63	65	59
7	74	226	1530	190	110	326	1400	344	62	61	64	55
8	544	202	1400	162	108	293	1100	293	66	54	64	63
9	2940	185	960	160	106	267	900	246	60	56	65	91
10	2110	176	666	150	111	244	780	226	65	55	69	114
11	652	167	560	110	137	235	600	200	90	213	68	86
12	484	176	480	100	190	226	500	181	81	183	66	75
13	361	176	503	120	261	1700	450	167	76	176	50	62
14	267	156	443	150	484	1650	401	156	82	116	55	56
15	216	150	417	136	577	880	366	144	80	87	56	52
16	185	156	409	170	488	880	333	135	96	73	53	51
17	181	167	372	130	342	536	300	120	85	66	52	56
18	197	160	322	130	333	450	276	122	81	61	66	65
19	176	156	282	160	293	420	261	118	80	58	65	65
20	171	161	270	162	262	400	246	113	76	55	66	61
21	237	170	293	150	260	400	262	107	71	56	66	68
22	249	176	226	168	207	390	232	102	68	56	57	57
23	216	166	252	162	246	380	216	99	67	57	67	53
24	195	150	221	120	1670	320	236	96	156	58	62	50
25	261	166	216	120	2760	311	240	90	166	58	55	68
26	2360	161	232	120	1610	280	221	106	126	57	58	65
27	1200	162	213	130	1120	280	207	107	116	57	55	65
28	753	168	215	137	981	262	197	99	91	55	68	64
29	535	155	213	120	---	256	215	92	110	51	66	64
30	422	206	160	115	---	236	236	87	107	52	87	63
31	454	---	236	100	---	216	---	86	---	52	76	---
TOTAL	16606	6313	12816	4360	13252	14297	28635	5731	2765	2381	1860	1818
MEAN	536	210	414	141	473	461	955	185	92.2	76.8	60.0	60.6
MAX	2940	474	1530	200	2760	1730	9000	362	166	213	87	114
MIN	74	150	160	100	105	216	197	86	60	51	44	43
CFSM	1.76	.69	1.36	.46	1.55	1.51	3.13	.61	.30	.25	.20	.20
IN.	2.03	.77	1.56	.53	1.62	1.74	3.49	.70	.34	.29	.23	.22

CAL YR 1976 TOTAL 114663 MEAN 313 MAX 6620 MIN 46 CFSM 1.03 IN 13.91
WTR YR 1977 TOTAL 109936 MEAN 301 MAX 9000 MIN 43 CFSM .99 IN 13.41

03175500 WOLF CREEK NEAR NARROWS, VA

LOCATION.--Lat 37°18'20", long 80°51'00", Giles County, Hydrologic Unit 05050002, on right bank at downstream side of bridge on State Highway 724, 2.8 mi (4.5 km) southwest of Narrows, and at mile 3.5 (5.6 km).

DRAINAGE AREA.--223 mi² (578 km²).

PERIOD OF RECORD.--July 1908 to September 1916, March 1938 to current year.

REVISED RECORDS.--WSP 973: 1940-41(M). WSP 1235: 1912-13, 1915-16. WSP 1305: 1940, monthly and yearly runoff. WSP 1725: 1913(M), 1915-16(M), 1941 calendar year runoff.

GAGE.--Water-stage recorder. Datum of gage is 1,583.83 ft (482.751 m) above mean sea level. July 22, 1908, to Sept. 30, 1916, and Mar. 31 to Nov. 7, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--47 years, 296 ft³/s (8.383 m³/s), 18.03 in/yr (458 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,900 ft³/s (365 m³/s) Jan. 29, 1957, gage height, 12.55 ft (3.825 m), from floodmark in gage well, 13.8 ft (4.21 m), from floodmark at downstream side of bridge, from rating curve extended above 5,700 ft³/s (160 m³/s) on basis of contracted-opening measurement of peak flow; minimum, 0.8 ft³/s (0.25 m³/s) Dec. 25, 1953, gage height, 2.28 ft (0.695 m), result of freezeup; minimum daily, 16 ft³/s (0.45 m³/s) Sept. 17, 18, 20-28, 1964.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,200 ft³/s (62 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1530	5700	161	9.40	2.865	Feb. 24	1800	3900	110	8.08	2.463
Oct. 26	0700	2310	65.4	6.61	2.015	Apr. 5	0845	*11500	326	12.01	3.661

Minimum discharge, 35 ft³/s (0.99 m³/s) Sept. 2, 10, gage height, 2.46 ft (0.750 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29	[illegible]	[illegible]	[illegible]	[illegible]	---	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30	[illegible]	[illegible]	[illegible]	[illegible]	---	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
31	[illegible]	---	[illegible]	[illegible]	---	[illegible]	---	[illegible]	---	[illegible]	[illegible]	---
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MEAN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MAX	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MIN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CFSM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IN.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

CAL YR 1976 TOTAL [illegible] MEAN [illegible] MAX [illegible] MIN [illegible] CFSM [illegible] IN [illegible]
WTR YR 1977 TOTAL [illegible] MEAN [illegible] MAX [illegible] MIN [illegible] CFSM [illegible] IN [illegible]

KANAWHA RIVER BASIN

03176500 NEW RIVER AT GLEN LYN, VA

LOCATION.--Lat 37°22'20", long 80°51'45", Giles County, Hydrologic Unit 05050002, on right bank at upstream side of bridge on U.S. Highway 460 at Glen Lyn, 0.3 mi (0.5 km) upstream from East River, and 6.3 mi (10.1 km) downstream from Wolf Creek.

DRAINAGE AREA.--3,768 mi² (9,759 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1927 to current year.

REVISED RECORDS.--WSP 758: Drainage area. WSP 1305: 1928(M), 1930(M).

GAGE.--Water-stage recorder. Datum of gage is 1,490.24 ft (454.225 m) above mean sea level. Aug. 11, 1927, to Oct. 16, 1934, on left bank just upstream from highway bridge at same datum, and Oct. 17, 1934, to June 16, 1939, on left bank 200 ft (61 m) upstream from highway bridge at same datum.

REMARKS.--Records good. Flow regulated since 1939 by Claytor Reservoir (station 03169000) 55 mi (88 km) above station. Corps of Engineers gage-height telemeter at station.

AVERAGE DISCHARGE.--50 years, 4,950 ft³/s (140.2 m³/s), 17.84 in/yr (453 mm/yr), adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 226,000 ft³/s (6,400 m³/s) Aug. 14, 1940, gage height, 27.50 ft (8.382 m), from rating curve extended above 89,000 ft³/s (2,500 m³/s) on basis of slope-area measurement of peak flow; minimum, 730 ft³/s (20.7 m³/s) Jan. 30, 1966, result of freezeup; minimum daily, 820 ft³/s (23.2 m³/s) Sept. 8, 1930; minimum gage height, 2.10 ft (0.640 m) Sept. 8, 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 98,900 ft³/s (2,800 m³/s) Apr. 5, gage height, 17.16 ft (5.230 m); minimum, 984 ft³/s (27.9 m³/s) Aug. 29, 30, gage height, 3.06 ft (0.933 m); minimum daily, 1,030 ft³/s (29.2 m³/s) Aug. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5040	5540	5410	2410	2350	7870	6410	5970	3790	3310	1190	1460
2	5060	5930	6130	1650	2710	7340	8750	3860	3070	3130	1480	1990
3	3340	5490	4440	1920	2820	6730	5350	5040	3340	2270	1410	2600
4	1990	5230	4070	3900	2860	6470	15900	4870	3340	1830	1400	1760
5	2510	5300	3410	3740	2480	6430	74400	4740	2490	3560	1450	1260
6	2200	4470	2900	3490	2000	4470	53400	6890	1600	3690	1470	1190
7	2330	3230	9070	4770	2240	8240	23500	6960	2400	2780	1260	1850
8	11500	3640	17100	5090	3730	7040	15500	5930	3140	2720	1150	3760
9	68200	4950	13500	3240	2740	7170	13100	4000	3530	2590	2090	5780
10	34700	3930	9240	1740	2700	4070	11200	4440	3010	1440	2220	6810
11	14200	3430	4880	4500	4040	4920	8740	5270	3630	1610	2490	5190
12	10900	4730	7450	4230	3550	4040	8370	4430	1470	2750	4010	1480
13	4210	4480	5900	4770	3380	4430	6400	3700	1270	3280	2430	3040
14	7040	4290	4060	3240	3240	29900	6520	3040	2720	3690	2010	2410
15	6060	2410	5350	3130	4150	17200	6400	2400	2770	3930	1480	2160
16	4760	3910	5370	1970	4170	12600	6400	2940	2840	3890	4430	1470
17	2870	3400	4270	1540	5480	10900	6450	3760	2980	1390	3830	2670
18	2790	4730	4230	7240	5140	10400	5550	3160	3500	1230	2450	1520
19	4570	3830	3760	5000	4070	4880	5780	3250	3100	2640	1280	1300
20	7130	3300	2940	4000	2420	4100	4420	3290	3500	2780	1730	2110
21	7250	3110	5070	3500	1760	6760	4420	3190	3790	1830	2090	2510
22	5130	2530	4490	1400	3610	4410	5000	2480	3100	1710	1190	2530
23	3940	3700	4290	1800	3170	7500	5350	2590	3140	1780	2450	2720
24	2290	2710	4510	1710	6340	5990	4940	4000	4490	1300	2060	2440
25	2200	4160	2080	2710	17900	5410	6130	4030	5190	1700	1420	1240
26	17900	1760	2040	2700	15100	5530	5550	3500	4490	1850	1490	1060
27	14200	3940	3730	3050	12400	4040	6200	4030	1470	1830	1780	2560
28	9500	2540	4350	3970	4070	3630	5700	3310	3340	2010	1160	2670
29	7030	4110	4760	3725	---	5170	4490	2270	4100	1280	1030	2640
30	6330	5560	5080	2050	---	5350	4760	1800	3370	1580	1710	2860
31	4920	---	4340	1950	---	6360	---	3600	---	1280	1310	---
TOTAL	275550	122550	174590	100820	139130	248410	342900	125180	95410	71960	63110	75760
MEAN	8889	4085	5632	3252	4969	8013	11430	4038	3180	2321	2036	2525
MAX	68200	5930	17100	7240	17900	29900	74400	6960	5190	3930	4430	6810
MIN	1990	1760	2040	1400	1760	3630	4420	1800	1270	1200	1030	1060
(*)	-39	-295	+320	+33	+1	-75	+29	+22	-9	+28	+14	-160
MEAN‡	8850	3790	5952	3285	4970	7938	11459	4060	3171	2349	2050	2365
CFSM‡	2.35	1.01	1.58	.87	1.32	2.11	3.04	1.08	.84	.62	.54	.62
IN‡	2.71	1.13	1.82	1.00	1.38	2.43	3.39	1.24	.94	.72	.62	.69

CAL YR 1976 TOTAL 1846150 MEAN 5044 MAX 68200 MIN 1070 MEAN‡ 5045 CFSM‡ 1.34 IN‡ 18.24
WTR YR 1977 TOTAL 1836860 MEAN 5027 MAX 74400 MIN 1030 MEAN‡ 5017 CFSM‡ 1.33 IN‡ 18.07

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* Change in contents, equivalent in cubic feet per second, in Claytor Reservoir; furnished by Appalachian Power Co.
‡ Adjusted for change in contents.

03176500 NEW RIVER AT GLEN LYN, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1931, 1950, 1952, 1955-56, 1965 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1968 to current year.
WATER TEMPERATURES: October 1964 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (water years 1968-71, 1973-77): Maximum, 350 micromhos Nov. 6, 1968; minimum, 75 micromhos Jan. 14, June 3, 1975.
WATER TEMPERATURES (water years 1964-71, 1973-77): Maximum, 29.0°C July 10, 1973, July 14, 19, 21, 1977; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 185 micromhos Sept. 7; minimum, 80 micromhos Dec. 11.
WATER TEMPERATURES: Maximum, 29.0°C July 14, 19, 21; minimum, 0.5°C Jan. 29, 30.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
OCT 15...	1230	7130	115	5	56	16	14	5.1	2.5	2.0	49	9.5
NOV 15...	0810	2990	126	0	60	15	14	6.0	3.4	1.8	55	11
DEC 15...	1100	7050	123	0	60	15	15	5.4	2.8	1.5	55	11
JAN 15...	1000	3380	139	0	59	10	14	5.9	3.3	1.4	60	10
FEB 15...	1000	8170	120	5	50	11	12	4.9	3.1	1.3	48	10
MAR 15...	1300	16600	105	50	46	14	12	3.9	2.5	1.5	39	6.6
APR 15...	1300	6830	138	0	66	18	17	5.6	2.3	1.6	58	9.1
MAY 15...	1330	2450	140	10	65	14	16	6.0	3.1	1.4	62	11
JUN 15...	1315	3550	145	5	69	18	17	6.5	3.4	1.5	63	11
JUL 15...	1245	5310	138	5	65	16	16	6.0	4.4	1.6	59	10
AUG 15...	0800	1240	147	2	72	18	18	6.5	4.2	1.8	65	13
SEP 15...	1300	2650	150	1	68	18	16	6.9	4.0	1.8	61	13

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED NITRATE (N) (MG/L)	DISSOLVED NITRATE (NO3) (MG/L)	DISSOLVED NITRITE (N) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO PHOSPHATE (PO4) (MG/L)	DISSOLVED IRON (FE) (UG/L)
OCT 15...	2.8	.2	6.8	75	70	.69	3.1	.00	.69	.01	.03	10
NOV 15...	3.5	.0	7.6	74	78	.74	3.3	.00	.74	.01	.03	10
DEC 15...	3.0	.0	7.2	81	76	.62	2.7	.00	.62	.01	.03	0
JAN 15...	3.2	.0	7.2	84	78	.70	3.1	.00	.70	.01	.03	10
FEB 15...	4.0	.0	7.1	76	70	.72	3.2	.00	.72	.01	.03	20
MAR 15...	3.5	.0	7.2	61	60	.76	3.4	.00	.76	.00	.00	20
APR 15...	3.5	.1	6.6	85	78	.89	3.9	.00	.89	.01	.03	30
MAY 15...	3.6	.0	4.9	93	79	.61	2.7	.00	.61	.02	.06	20
JUN 15...	3.3	.1	6.7	86	83	.59	2.6	.00	.59	.03	.09	0
JUL 15...	4.0	.1	6.5	82	80	.47	2.1	.00	.47	.02	.06	10
AUG 15...	4.2	.1	6.3	90	89	.71	3.1	.00	.71	.03	.09	10
SEP 15...	4.3	.1	7.6	86	86	.58	2.6	.00	.58	.02	.06	10

03176500 NEW RIVER AT GLEN LYN, VA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	123	93	123	142	160	107	117	141	140	138	171	184
2	133	120	130	150	150	115	115	141	150	140	178	183
3	135	120	120	163	140	117	110	132	155	135	168	161
4	143	115	120	150	139	116	140	125	160	138	162	160
5	140	118	136	140	138	118	111	127	145	158	188	168
6	148	120	140	129	139	119	110	123	142	120	170	169
7	155	105	135	120	150	115	120	123	150	132	172	185
8	163	135	95	120	148	110	125	128	161	135	177	162
9	140	90	105	117	135	108	125	132	157	138	182	127
10	130	95	82	146	140	115	122	125	136	155	160	129
11	102	123	80	140	129	120	120	121	136	155	148	125
12	130	118	90	120	125	125	130	130	157	158	151	132
13	127	115	120	124	140	125	131	130	140	155	140	132
14	130	119	118	129	135	95	135	136	145	133	137	140
15	115	126	123	139	120	105	138	140	145	138	147	150
16	132	130	120	150	111	105	137	141	153	120	140	160
17	168	135	119	165	111	105	140	143	145	133	121	151
18	170	138	116	150	115	106	150	144	143	148	126	152
19	167	120	121	135	128	120	130	144	140	143	132	172
20	135	130	140	139	125	120	140	158	138	145	130	172
21	120	134	135	140	140	116	145	158	125	140	150	170
22	135	138	119	140	140	108	145	150	125	143	140	153
23	145	125	122	162	125	110	140	157	133	150	152	160
24	157	123	120	165	137	115	134	151	125	160	160	161
25	167	125	150	150	106	116	130	148	120	168	157	143
26	158	138	150	145	100	116	128	141	123	174	165	175
27	120	136	160	146	100	130	123	136	130	160	159	140
28	125	138	140	135	105	130	124	138	125	160	160	140
29	110	138	129	130	---	122	135	140	135	153	168	139
30	118	120	120	143	---	120	136	143	130	168	170	138
31	123	---	120	168	---	115	---	150	---	158	168	---
MEAN	138	123	123	142	130	115	130	138	140	147	156	154

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.0	10.0	3.5	1.0	2.0	4.0	13.5	17.0	23.0	25.0	26.0	27.5
2	17.5	9.5	4.0	1.5	2.0	4.5	14.0	17.0	24.0	25.0	27.5	28.0
3	18.0	9.5	4.0	2.0	2.0	5.0	14.0	18.0	21.0	24.0	26.5	27.5
4	18.0	9.5	3.0	2.5	1.5	6.5	14.0	18.0	20.5	25.0	26.0	27.5
5	19.0	9.0	3.0	3.0	1.5	7.5	13.0	18.0	21.0	25.0	27.0	26.0
6	19.0	7.0	4.5	4.0	1.0	8.0	11.0	17.0	23.0	26.5	27.5	26.0
7	19.5	7.5	5.0	4.0	2.0	6.0	10.0	18.0	21.0	27.0	27.0	27.0
8	18.0	8.0	5.0	3.5	2.5	6.0	12.0	18.0	19.0	28.0	28.0	25.0
9	18.0	7.0	4.0	3.0	1.5	6.5	12.0	17.0	19.0	28.0	27.0	23.0
10	16.0	9.0	5.0	2.5	2.0	7.0	12.0	16.0	19.0	28.0	27.0	23.0
11	15.5	9.0	5.5	2.0	2.5	8.0	12.0	16.0	19.5	27.0	27.0	22.0
12	15.0	9.0	6.0	2.0	3.0	10.0	13.0	19.0	22.0	28.0	26.5	21.5
13	15.5	7.5	6.0	2.0	3.0	10.0	13.5	19.0	22.5	28.0	26.0	22.5
14	15.5	7.0	4.0	1.5	2.5	8.5	14.0	19.0	23.5	29.0	26.0	23.5
15	15.0	6.5	5.0	2.0	4.0	9.0	15.0	19.0	24.0	28.0	25.0	24.0
16	16.0	6.0	5.0	2.0	3.0	10.5	15.0	19.5	23.0	28.0	27.5	23.0
17	14.0	7.0	4.5	1.0	2.0	10.0	15.0	19.0	23.5	26.5	27.5	24.0
18	12.0	6.5	4.5	1.5	2.5	10.0	15.0	19.5	23.5	28.0	25.5	23.5
19	12.5	7.0	4.0	1.5	3.0	10.5	16.0	20.0	23.0	29.0	25.0	24.0
20	13.5	7.5	6.0	1.5	3.0	11.0	17.0	22.0	23.0	28.0	25.0	24.5
21	12.0	7.0	4.0	1.5	3.5	10.0	12.0	22.0	23.0	29.0	25.5	24.0
22	11.5	7.0	2.0	2.0	2.5	10.0	12.5	22.0	23.0	27.5	24.5	21.5
23	10.0	5.5	3.0	2.0	4.0	8.0	12.0	22.5	22.0	27.5	25.0	22.0
24	11.0	5.0	3.0	2.0	6.0	9.0	12.5	22.0	21.0	27.0	25.5	22.0
25	12.0	5.0	3.0	2.0	4.5	9.5	14.0	22.5	22.0	27.0	24.0	23.0
26	12.5	6.5	3.5	2.0	4.5	10.0	15.5	22.0	22.0	27.0	25.5	25.0
27	11.0	8.0	2.0	1.5	5.0	10.5	15.0	22.0	23.0	25.0	24.0	22.5
28	10.5	8.5	4.0	2.0	5.0	11.0	17.0	22.5	25.0	23.5	24.0	22.0
29	10.5	9.0	4.0	0.5	---	13.0	17.0	23.0	26.0	24.5	26.0	20.0
30	10.0	5.0	2.0	0.5	---	14.5	17.0	23.0	24.0	24.0	28.0	20.0
31	10.5	---	2.5	1.5	---	14.0	---	24.0	---	25.0	28.0	---
MEAN	14.5	7.5	4.0	2.0	3.0	9.0	14.0	20.0	22.5	26.5	26.0	24.0

03177700 BLUESTONE RIVER AT BLUEFIELD, VA

LOCATION.--Lat 37°15'21", long 81°16'55", Tazewell County, Hydrologic Unit 05050002, on right bank 50 ft (15 m) downstream from pump house and 1,000 ft (305 m) upstream from outfall of sewage treatment plant at Bluefield, 0.9 mi (1.4 km) downstream from Beaverpond Creek, and 3.5 mi (5.6 km) upstream from Brush Fork.

DRAINAGE AREA.--39.8 mi² (103.1 km²).

PERIOD OF RECORD.--October 1965 to current year.

GAGE.--Nonrecording gage. Altitude of gage is 2,350 ft (716 m), from topographic map.

REMARKS.--Records fair except those for January, which are poor. Discharge figures herein do not include effluent from sewage treatment plant as some of it comes from another watershed. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--12 years, 54.0 ft³/s (1.529 m³/s), 18.43 in/yr (468 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 1,030 ft³/s (29.2 m³/s) Mar. 14, 1975, gage height, 7.40 ft (2.256 m), from rating curve extended above 780 ft³/s (22 m³/s); minimum observed, 5.0 ft³/s (0.14 m³/s) Oct. 6, 1965, Dec. 3, 1969; minimum gage height, 0.30 ft (0.091 m) Sept. 8, 9, 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge observed, 805 ft³/s (22.8 m³/s) Apr. 4, gage height, 6.40 ft (1.951 m); minimum observed, 8.5 ft³/s (0.24 m³/s) June 4, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	50	30	44	27	119	57	60	16	28	13	13
2	54	42	28	48	27	93	54	57	10	25	14	13
3	35	39	27	48	26	78	97	54	9.3	23	50	19
4	30	36	26	41	24	85	717	60	8.8	21	23	16
5	24	34	24	43	25	92	615	57	8.5	20	21	14
6	20	32	25	40	27	78	415	74	24	20	19	16
7	43	35	340	37	26	74	251	57	15	18	19	14
8	195	30	181	30	24	68	181	46	14	16	19	26
9	739	28	109	29	22	60	129	43	17	17	19	22
10	251	28	89	27	22	54	109	39	14	16	18	16
11	119	26	78	27	25	54	93	35	12	15	20	14
12	82	26	93	27	46	46	82	30	12	18	24	13
13	88	27	101	30	47	325	74	30	12	18	24	13
14	54	26	89	35	78	195	71	28	22	15	28	13
15	46	25	78	44	82	153	64	27	17	14	26	13
16	34	24	78	47	64	119	57	26	12	14	24	14
17	42	25	68	40	50	109	54	26	32	14	54	50
18	36	25	54	37	43	101	50	24	30	14	28	33
19	30	23	50	38	46	89	46	20	24	15	20	28
20	30	23	57	37	50	93	50	22	19	14	21	25
21	28	24	57	35	43	85	51	16	18	12	18	25
22	26	24	46	32	66	93	54	20	35	18	18	20
23	24	23	43	30	97	85	54	20	153	14	18	20
24	33	20	41	29	385	82	57	19	85	14	22	22
25	98	20	39	27	265	78	54	23	64	18	18	20
26	145	21	43	26	209	71	50	18	54	24	16	20
27	101	22	38	27	209	68	50	12	41	14	15	20
28	78	24	39	29	181	64	46	11	36	14	15	20
29	64	34	40	28	---	64	60	11	33	21	14	20
30	57	30	40	27	---	64	50	12	28	21	14	20
31	60	---	54	25	---	60	---	12	---	15	14	---
TOTAL	2753	846	2105	1064	2288	2889	3792	989	875.6	540	666	592
MEAN	88.8	28.2	67.9	34.3	81.7	93.2	126	31.9	29.2	17.4	21.5	19.7
MAX	739	50	340	48	385	325	717	74	153	28	54	50
MIN	20	20	24	25	22	46	46	11	8.5	12	13	13
CFSM	2.23	.71	1.71	.86	2.05	2.34	3.17	.80	.73	.44	.54	.50
IN.	2.57	.79	1.97	.99	2.14	2.70	3.54	.92	.82	.50	.62	.55
*FT³/S	3.00	2.92	3.54	4.61	3.18	2.15	.82	2.14	2.67	2.96	2.48	3.10

CAL YR 1976 TOTAL 16301.2 MEAN 44.5 MAX 739 MIN 6.5 CFSM 1.12 IN 15.26 *FT³/S 3.69
WTR YR 1977 TOTAL 19399.6 MEAN 53.1 MAX 739 MIN 8.5 CFSM 1.33 IN 18.13 *FT³/S 2.80

* Sewage Treatment Plant effluent in cubic feet per second.

03207800 LEVISA FORK AT BIG ROCK, VA

LOCATION.--Lat 37°21'13", long 82°11'45", Buchanan County, Hydrologic Unit 05070202, on left bank at Big Rock, 2,000 ft (610 m) downstream from Rocklick Creek, and 2,500 ft (762 m) downstream from bridge on State Highway 645.

DRAINAGE AREA.--297 mi² (769 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 866.37 ft (264.070 m) above mean sea level.

REMARKS.--Records good. Corps of Engineers gage-height telemeter at station.

AVERAGE DISCHARGE.--10 years, 386 ft³/s (10.93 m³/s), 17.65 in/yr (448 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 56,000 ft³/s (1,590 m³/s) Apr. 4, 1977, gage height, 27.38 ft (8.345 m), from rating curve extended above 7,000 ft³/s (200 m³/s) on basis of slope-area measurement of peak flow; minimum, 5.0 ft³/s (0.14 m³/s) Oct. 1, 13, 14, 17, 18, 19, 20, 1969, gage height, 3.65 ft (1.113 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 29, 1957, reached a stage of about 23.0 ft (7.0 m), information from local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,500 ft³/s (130 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1130	6000	170	9.25	2.819	Apr. 4	1845	*56000	1590	27.38	8.345

Minimum discharge, 40 ft³/s (1.13 m³/s) Sept. 13, gage height, 4.12 ft (1.256 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	911	255	132	150	70	540	225	399	90	287	170	111
2	514	220	170	200	66	441	220	330	82	235	135	79
3	234	206	149	300	72	375	1010	300	75	160	108	63
4	157	194	138	304	85	363	24800	260	70	120	89	59
5	114	174	135	265	110	363	15200	230	67	90	75	57
6	96	156	129	240	90	333	3410	940	111	76	68	56
7	213	145	799	260	74	309	2190	638	301	70	68	51
8	1860	135	1370	240	64	276	1540	477	179	64	68	60
9	4200	120	742	280	60	250	1060	351	135	62	202	63
10	1570	120	534	310	70	235	817	265	135	110	481	53
11	602	117	471	240	80	220	670	220	111	140	1020	49
12	364	129	616	230	120	215	560	190	91	110	584	46
13	255	114	1060	240	333	426	489	160	80	90	1180	42
14	194	98	890	290	447	435	447	140	130	84	862	53
15	159	100	654	662	495	609	399	130	170	80	495	105
16	135	103	514	694	423	489	357	120	120	70	282	82
17	132	98	405	465	345	405	315	120	170	60	235	108
18	123	96	327	370	321	449	282	110	220	54	415	129
19	100	96	276	300	298	588	255	110	150	50	206	96
20	99	96	265	260	333	799	240	100	130	64	194	135
21	105	96	287	230	298	750	230	95	120	80	145	72
22	93	98	186	190	304	702	206	90	108	110	100	59
23	86	89	245	160	405	567	202	88	508	90	49	50
24	91	82	190	180	1540	501	304	130	445	76	178	49
25	250	82	170	170	1660	435	333	100	710	70	152	49
26	1740	84	230	170	1000	381	276	110	547	70	91	59
27	817	93	202	160	799	333	240	90	381	66	72	60
28	477	100	190	140	670	304	210	86	553	54	65	59
29	339	142	202	90	---	276	339	82	574	82	60	50
30	282	142	163	100	---	282	423	85	333	163	62	45
31	315	---	287	86	---	265	---	120	---	210	100	---
TOTAL	16583	3780	12126	7976	10632	13756	57249	6664	6995	3147	7855	2049
MEAN	535	126	391	257	380	444	1908	215	233	102	253	68.3
MAX	4200	255	1370	694	1660	835	24800	940	710	287	1180	135
MIN	86	82	129	86	60	215	202	82	67	50	60	42
CFSM	1.80	.42	1.32	.87	1.28	1.50	6.42	.72	.79	.34	.85	.23
IN.	2.08	.47	1.52	1.00	1.33	1.72	7.17	.83	.88	.39	.98	.26

CAL YR 1976 TOTAL 103622 MEAN 283 MAX 4200 MIN 16 CFSM .95 IN 12.95
WTR YR 1977 TOTAL 148814 MEAN 408 MAX 24800 MIN 42 CFSM 1.37 IN 18.64

03207800 LEVISA FORK AT BIG ROCK, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1970 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1969 to June 1972, March 1974 to current year.
WATER TEMPERATURES: October 1969 to June 1972, August 1973 to current year.
SUSPENDED-SEDIMENT DISCHARGE: January 1970 to June 1972, August 1973 to current year.

INSTRUMENTATION.--Water-quality monitor since October 1975.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 27,800 mg/L Aug. 11, 1977; minimum daily mean, 1 mg/L Oct. 19, 1970.
SEDIMENT LOADS: Maximum daily, 502,000 tons (445,000 tonnes) Apr. 4, 1977; minimum daily, 0.04 tons (0.04 tonnes) Oct. 19, 1970.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 27,800 mg/L Aug. 11; minimum daily mean, 3 mg/L Nov. 20.
SEDIMENT LOADS: Maximum daily, 502,000 tons (445,000 tonnes) Apr. 4; minimum daily, 0.78 tons (0.71 tonnes) Nov. 20.

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	453	249	---	200	222	150	212				---	705
2	455	---	---	197	225	156	219				---	718
3	450	---	---	188	226	165	208				---	733
4	441	---	---	183	227	174	---				---	742
5	438	---	---	186	222	177	196				---	750
6	436	---	---	192	221	174	300				---	757
7	426	---	---	195	225	174	345				---	769
8	404	---	---	194	228	175	370				---	772
9	148	---	---	189	232	180	393				---	783
10	151	---	166	184	234	185	411				---	790
11	180	---	176	182	232	190	428				310	799
12	201	---	181	185	228	197	459				322	806
13	219	---	160	186	219	186	474				292	809
14	233	---	193	185	181	161	487				256	813
15	245	---	214	178	177	160	484				273	814
16	254	---	221	157	167	165	375				300	824
17	261	---	---	157	163	167	379				319	835
18	265	---	---	161	165	176	416				314	873
19	270	---	---	164	173	169	512				319	859
20	276	---	---	170	176	165	399				336	854
21	279	---	---	173	173	155	524				382	792
22	280	---	197	179	177	156	497				486	730
23	283	---	197	186	184	156	424				517	779
24	289	---	198	190	164	161	373				545	830
25	288	---	201	190	123	165	352				578	870
26	284	---	199	193	134	172	333				605	934
27	260	---	199	197	144	179	435				624	974
28	243	---	204	200	147	186	476				645	970
29	236	---	205	207	---	196	---				662	847
30	239	---	204	219	---	203	---				676	731
31	252	---	203	221	---	207	---				691	---
MEAN	295	---	195	187	192	174	388				450	809

03207800 LEVISA FORK AT BIG ROCK, VA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.0	3.0	---	0.0	0.0	2.5	13.0				---	26.5
2	15.0	---	---	0.0	0.0	2.5	15.0				---	25.0
3	15.5	---	---	0.0	0.0	4.5	14.0				---	25.0
4	16.5	---	---	0.0	0.0	7.5	10.0				---	25.5
5	17.0	---	---	0.0	0.0	8.5	9.0				---	24.0
6	17.5	---	---	1.0	0.0	7.5	6.5				---	25.5
7	17.0	---	---	1.5	0.0	6.0	7.0				---	24.5
8	15.0	---	---	0.0	0.0	5.5	10.0				---	24.0
9	13.0	---	---	0.0	0.0	7.0	9.5				---	24.0
10	12.0	---	2.5	0.0	0.0	7.5	10.5				---	23.0
11	12.0	---	4.5	0.0	0.0	9.0	13.0				22.0	22.0
12	12.5	---	6.0	0.0	0.0	11.0	14.5				22.0	21.0
13	13.5	---	5.5	0.0	0.0	10.5	15.0				20.5	21.0
14	13.5	---	2.0	0.0	0.0	9.0	15.5				20.5	21.5
15	12.5	---	2.0	0.0	0.5	9.5	16.5				22.0	21.5
16	12.0	---	2.5	0.0	0.0	11.0	22.5				23.5	22.0
17	12.5	---	---	0.0	0.0	8.5	23.0				23.0	21.5
18	10.0	---	---	0.0	0.0	10.0	22.5				22.0	22.0
19	6.5	---	---	0.0	1.0	9.0	18.5				22.0	22.0
20	10.0	---	---	0.0	2.0	9.0	20.0				22.0	21.5
21	6.5	---	---	0.0	0.5	7.0	19.5				22.0	21.0
22	8.0	---	0.0	0.0	1.5	6.5	21.0				22.5	20.5
23	7.0	---	0.0	0.0	4.0	5.5	23.5				22.5	20.5
24	6.0	---	0.0	0.0	5.0	6.5	21.5				22.0	21.0
25	10.5	---	0.0	0.0	5.0	7.0	21.0				22.5	21.0
26	---	---	0.0	0.0	5.5	8.5	21.0				23.0	21.0
27	---	---	0.0	0.0	6.0	9.5	18.0				24.5	20.5
28	0.0	---	1.0	0.0	4.5	11.5	14.5				25.5	20.0
29	1.0	---	1.0	0.0	---	13.5	---				25.5	19.0
30	2.5	---	0.0	0.0	---	15.5	---				25.5	18.5
31	3.0	---	0.0	0.0	---	14.5	---				25.0	---
MEAN	11.0	---	1.5	0.0	1.5	8.5	16.0				23.0	22.0

03207800 LEVISA FORK AT BIG ROCK, VA--Continued

SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	3140	7820	42	43	54	21	89	36	51	10	79	115
2	661	615	49	53	61	24	55	30	13	2.3	60	71
3	87	56	52	29	20	4.0	50	40	20	3.9	60	61
4	43	27	12	5.3	10	3.7	44	36	12	2.8	55	56
5	46	15	14	6.5	8	2.0	47	62	12	3.4	39	38
6	31	4.0	37	16	18	6.3	72	67	15	3.6	23	21
7	3780	3100	20	7.8	470	1450	30	21	12	2.9	18	15
8	4880	18500	7	2.6	440	1700	32	21	21	3.6	13	9.7
9	3070	36200	26	7.8	90	140	50	38	43	7.0	19	12
10	480	1980	19	6.2	280	375	69	61	58	11	12	7.6
11	200	325	16	4.6	220	240	29	19	116	25	17	18
12	110	115	10	3.5	190	316	61	25	160	68	769	630
13	124	80	11	3.6	340	1040	260	168	249	226	1450	3230
14	57	29	11	2.9	90	216	240	219	293	356	480	857
15	23	9.9	4	1.1	92	150	575	1030	323	432	100	166
16	25	9.1	10	2.8	80	111	1360	2550	316	346	78	103
17	22	7.1	10	2.6	560	540	160	211	108	101	38	62
18	12	4.6	9	2.3	1200	1040	38	38	66	55	426	791
19	6	1.6	5	1.3	470	350	32	26	92	76	418	981
20	21	5.6	3	0.78	130	93	169	112	106	66	482	826
21	30	4.6	5	1.3	520	403	100	62	153	155	216	633
22	11	2.8	5	1.3	190	95	58	30	236	192	169	262
23	9	2.4	6	1.6	64	32	42	18	152	166	102	156
24	23	6.9	8	1.9	19	9.7	32	16	2760	10500	67	91
25	671	811	7	1.6	13	6.0	80	37	635	2850	60	70
26	2890	14400	6	1.6	20	12	68	31	203	568	136	160
27	167	364	6	1.5	22	12	32	16	130	280	21	19
28	62	80	8	2.2	96	68	27	10	109	197	15	12
29	34	35	9	2.5	164	81	24	5.4	---	---	160	106
30	20	53	12	4.6	82	36	42	11	---	---	401	275
31	88	76	---	---	123	95	95	27	---	---	53	38
TOTAL	---	82610.5	---	225.74	---	8869.6	---	5026.8	---	15706.2	---	9456.3

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	15	6.1	540	625	700	170	212	166	133	61	470	201
2	20	12	350	312	146	41	250	159	109	40	53	11
3	665	1010	270	219	110	22	237	102	66	19	50	8.5
4	5520	502000	975	686	77	15	205	66	73	18	55	8.8
5	4440	219000	4560	2930	88	16	160	39	63	13	42	6.5
6	1560	16200	6900	17500	7000	2120	140	29	40	11	42	6.6
7	464	3830	1200	2170	3450	3550	120	23	97	18	43	5.9
8	427	1700	160	206	675	326	105	18	4250	780	47	7.6
9	288	826	70	68	1300	476	250	62	5600	2950	51	8.7
10	201	443	31	22	300	109	418	124	16900	45600	51	7.3
11	145	353	60	36	120	36	440	186	27000	64700	47	6.2
12	206	311	53	27	130	32	227	67	3100	4920	47	5.8
13	313	413	50	24	110	26	58	16	1710	5450	52	5.9
14	400	403	45	17	1670	586	22	5.0	550	1200	140	20
15	248	267	22	7.7	590	271	18	3.9	530	700	425	92
16	268	237	18	5.2	200	65	20	3.8	1360	1020	170	38
17	269	221	31	10	120	55	20	3.2	1930	1220	125	36
18	260	198	39	12	116	66	25	3.6	5060	5050	153	53
19	368	268	41	12	500	202	22	3.0	900	551	152	39
20	448	316	20	5.4	560	197	12	2.1	250	131	406	166
21	302	243	19	4.9	370	120	68	15	90	35	143	28
22	339	199	11	2.7	2050	580	460	196	172	66	92	15
23	447	244	30	7.1	5650	7750	533	130	552	133	85	11
24	500	410	31	11	2450	3080	577	118	676	325	60	7.0
25	378	360	29	7.6	1000	1920	566	103	315	129	67	6.2
26	321	239	33	9.8	200	295	176	33	114	28	252	60
27	265	159	25	6.1	250	772	72	13	89	17	157	25
28	355	201	34	7.7	2050	3060	70	10	66	12	93	15
29	713	650	82	18	1500	2320	2560	567	52	8.6	58	7.8
30	540	1120	48	11	235	211	1210	533	103	17	45	5.5
31	---	---	1840	586	---	---	76	63	1000	270	---	---
TOTAL	---	750747.1	---	25472.2	---	24503	---	2816.6	---	135560.6	---	963.0

TOTAL LOAD FOR YEAR: 1066955.64 TONS.

03208000 LEVISA FORK BELOW FISHTRAP DAM, NEAR MILLARD, KY

LOCATION.--Lat 37°25'33", long 82°24'45", Pike County, Hydrologic Unit 05070202, on right bank 0.4 mi (0.6 km) downstream from Fishtrap Dam, 1.1 mi (1.8 km) upstream from Lower Pompey Branch, 1.9 mi (3.1 km) northeast of Millard, 2.4 mi (3.9 km) upstream from confluence with Russell Fork, and at mile 130.1 (209.3 km).

DRAINAGE AREA.--392 mi^2 (1,015 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1938 to current year. Prior to April 1968, published as Levisa Fork at Fishtrap.

REVISED RECORDS.--WSP 953: Drainage area. WSP 1335: 1938(M), 1939, 1940(M), 1942-43, 1944-45(M), 1946, 1948.

GAGE.--Water-stage recorder. Datum of gage is 600.00 ft (182.880 m) above mean sea level (levels by Corps of Engineers). Prior to Apr. 19, 1968, nonrecording gage at site 3.7 mi (6.0 km) upstream at different datum. Apr. 19, 1968, to June 18, 1973, water-stage recorder at site 1.0 mi (1.6 km) downstream at datum 59.96 ft (18.276 m) higher.

REMARKS.--Records good. Flow regulated by Fishtrap Lake beginning October 1968.

AVERAGE DISCHARGE.--39 years, 469 ft^3/s (13.28 m^3/s), 16.25 in/yr (413 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,000 ft^3/s (935 m^3/s) Jan. 29, 1957, gage height, 33.9 ft (10.33 m), from floodmark, site and datum then in use, from rating curve extended above 15,000 ft^3/s (420 m^3/s) on basis of slope-area measurement of peak flow; maximum gage height, 107.55 ft (32.781 m) Apr. 5, 1977, from floodmark, backwater from Russell Fork; no flow Apr. 5, 1977, all gates on Fishtrap Dam closed; minimum observed discharge prior to Fishtrap Lake, 0.1 ft^3/s (0.003 m^3/s) Nov. 8, 9, 1939, site then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,390 ft^3/s (238 m^3/s) Apr. 8, gage height, 85.90 ft (26.182 m); maximum gage height, 107.55 ft (32.781 m) Apr. 5, from floodmark, backwater from Russell Fork; no flow Apr. 5, all gates on Fishtrap Dam closed.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1620	521	221	303	100	1270	93	594	138	632	250	154
2	1590	349	180	175	100	1250	93	533	183	716	248	97
3	914	265	150	343	100	1220	97	509	183	695	133	67
4	418	474	173	305	99	1190	75	716	183	384	48	67
5	280	513	149	332	146	1020	.00	485	183	80	71	68
6	199	509	132	377	218	507	87	201	186	80	72	69
7	201	505	434	371	170	391	649	863	188	79	72	69
8	1690	420	1580	333	99	470	6590	983	188	77	72	70
9	2610	262	1380	380	98	527	8160	586	191	77	130	67
10	1880	259	709	453	99	237	7930	259	166	79	206	67
11	3730	212	617	342	98	236	8070	173	152	155	476	67
12	2060	371	697	217	171	239	7700	164	152	329	1020	146
13	352	367	825	268	219	283	6860	121	152	159	2490	195
14	64	262	1010	460	221	258	1420	120	152	79	2710	195
15	65	114	623	745	589	299	124	120	154	138	939	194
16	67	114	673	999	704	491	334	120	159	158	396	194
17	66	157	887	581	292	523	490	120	159	79	152	192
18	177	241	1060	316	694	620	414	120	161	79	505	191
19	273	241	683	624	731	926	249	120	161	78	414	172
20	299	238	414	450	442	1030	179	150	161	74	222	63
21	291	238	294	340	440	1030	369	200	161	74	194	60
22	280	235	188	442	328	1030	272	88	127	75	97	150
23	278	235	230	259	171	783	272	88	95	74	68	224
24	278	232	228	221	179	522	397	88	340	74	157	219
25	279	229	226	221	327	357	476	88	604	199	397	206
26	1240	226	225	221	1080	117	298	88	632	356	166	165
27	1810	186	226	222	1300	118	319	88	592	372	69	166
28	1460	102	317	222	1290	119	341	88	562	140	69	166
29	853	100	374	192	---	120	511	88	558	74	69	165
30	493	148	171	114	---	105	744	88	553	73	72	384
31	525	---	246	100	---	93	---	106	---	153	104	---
TOTAL	26342	8325	15242	11008	10425	17381	53613.00	8155	7576	5891	12088	4309
MEAN	850	278	492	355	372	561	1787	263	253	190	390	144
MAX	3730	521	1580	999	1300	1270	8160	983	632	716	2710	384
MIN	64	100	132	100	98	93	.00	88	95	73	48	60
(*)	-198	-150	+2	-5	+137	+46	+290	+6	+27	-31	0	-58
MEAN‡	652	128	494	350	509	607	2077	269	280	159	390	86
CFSM‡	1.66	.33	1.26	.89	1.30	1.55	5.30	.69	.71	.41	.99	.22
IN‡	1.92	.36	1.45	1.03	1.35	1.79	5.91	.79	.80	.47	1.15	.24

CAL YR 1976 TOTAL 138052.00 MEAN 379 MAX 3730 MIN 47 MEAN‡ 378 CFSM‡ .96 IN‡ 13.13
WTR YR 1977 TOTAL 180355.00 MEAN 494 MAX 8160 MIN .00 MEAN‡ 498 CFSM‡ 1.27 IN‡ 17.26

* Change in contents, equivalent in cubic feet per second, in Fishtrap Lake.
‡ Adjusted for change in contents.

03208000 LEVISA FORK BELOW FISHTRAP DAM, NEAR MILLARD, KY--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)
OCT												
21...	295	318	--	--	7	120	89	29	12	12	2.5	40
DEC												
02...	206	450	--	5.0	0	180	130	41	19	22	2.7	61
MAR												
09...	497	359	7.6	4.5	5	130	100	30	14	16	2.1	40
09...	378	--	--	--	--	--	--	--	--	--	--	--
MAY												
13...	121	460	6.8	19.0	0	180	140	39	19	19	3.0	40
JUL												
11...	77	565	7.7	22.0	10	220	160	54	21	26	3.2	72
AUG												
29...	222	460	7.6	24.0	5	180	140	44	17	18	3.2	54

DATE	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER DAY)	TOTAL ALUMINUM (AL) (UG/L)	DISSOLVED ALUMINUM (AL) (UG/L)	TOTAL IRON (FE) (UG/L)
OCT												
21...	0	33	100	6.5	.2	6.9	141	189	112	--	--	--
DEC												
02...	--	50	150	12	.2	6.7	305	244	170	150	20	330
MAR												
09...	0	33	120	6.8	.1	7.6	218	217	293	240	0	720
09...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
13...	0	33	150	6.8	.1	6.9	320	278	105	140	50	220
JUL												
11...	0	59	190	12	.1	5.6	400	348	83.2	210	150	140
AUG												
29...	0	44	150	9.7	.1	6.4	286	277	171	330	20	480

DATE	DISSOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	DISSOLVED ORGANIC CARBON (C) (MG/L)	TOTAL INORGANIC CARBON (C) (MG/L)	DISSOLVED INORGANIC CARBON (C) (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
OCT											
21...	0	--	--	--	170	--	--	--	--	20	16
DEC											
02...	40	6	2	--	440	7.5	7.2	8.5	4.8	--	--
MAR											
09...	10	21	9	240	280	9.8	7.4	12	7.2	--	--
09...	--	--	--	--	--	--	--	--	--	12	12
MAY											
13...	110	31	15	--	170	1.2	1.0	13	5.6	16	5.2
JUL											
11...	10	13	16	100	90	7.1	3.0	11	5.2	16	3.3
AUG											
29...	0	19	14	250	200	8.0	6.9	12	9.0	11	6.6

03208500 RUSSELL FORK AT HAYSI, VA

LOCATION.--Lat 37°12'25", long 82°17'45", Dickenson County, Hydrologic Unit 05070202, on right bank 180 ft (55 m) downstream from highway bridge at Haysi and 700 ft (213 m) downstream from McClure River.

DRAINAGE AREA.--286 mi² (741 km²).

PERIOD OF RECORD.--July 1926 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1003: 1926-43. WSP 1385: 1928(M), 1929, 1933(M), 1935(M), 1937-38(M).

GAGE.--Water-stage recorder. Datum of gage is 1,237.61 ft (377.224 m) above mean sea level. Prior to Dec. 21, 1939, nonrecording gage at highway bridge 180 ft (55 m) upstream at same datum.

REMARKS.--Records good. Corps of Engineers gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--51 years, 329 ft³/s (9.317 m³/s), 15.62 in/yr (397 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 59,000 ft³/s (1,670 m³/s) Apr. 4, 1977, gage height, 28.24 ft (8.608 m), from rating curve extended above 32,000 ft³/s (910 m³/s) on basis of slope-area measurement of peak flow; minimum observed, 0.2 ft³/s (0.006 m³/s) June 27, 28, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,500 ft³/s (130 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1200	6310	179	7.88	2.402	Apr. 4	1830	*59000	1670	28.24	8.608

Minimum discharge, 13 ft³/s (0.37 m³/s) Sept. 30, gage height, 1.77 ft (0.539 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	609	179	181	135	82	447	206	244	56	129	26	28
2	293	156	197	179	58	358	202	217	43	179	24	27
3	147	150	165	190	65	297	447	222	38	119	20	39
4	93	147	149	200	75	325	30600	200	35	86	19	22
5	63	137	125	200	100	610	17300	195	30	64	19	18
6	66	120	175	219	88	382	2630	214	37	56	62	161
7	109	108	799	230	65	342	1730	183	112	64	63	44
8	1100	94	1120	219	56	289	856	174	60	65	111	73
9	3610	91	609	250	52	255	623	167	46	35	160	71
10	1005	86	444	240	60	233	499	135	41	37	119	44
11	411	90	403	210	70	215	421	123	50	36	153	33
12	244	97	603	200	90	209	357	113	47	65	88	25
13	176	85	976	210	190	1930	310	103	42	57	419	21
14	144	70	730	250	250	1130	285	97	123	47	449	22
15	114	72	539	452	300	600	258	92	180	34	249	36
16	94	81	426	456	360	515	232	85	65	29	161	36
17	47	78	329	372	305	606	210	80	179	25	405	56
18	44	76	262	320	307	604	195	75	171	22	425	78
19	46	73	220	270	287	360	207	73	40	21	153	49
20	63	76	219	239	284	432	248	67	77	19	88	38
21	65	71	224	200	266	442	193	63	40	18	66	28
22	56	72	152	179	263	476	169	57	42	47	52	21
23	49	67	214	157	291	437	168	62	377	56	42	19
24	51	58	170	160	1060	608	251	54	290	35	105	16
25	175	58	150	150	1150	360	221	55	263	31	123	16
26	1020	59	194	150	768	309	144	61	211	30	62	17
27	572	73	191	140	627	273	172	59	253	25	40	20
28	318	77	166	129	534	253	160	52	293	20	30	23
29	224	149	142	80	---	238	300	68	197	18	26	18
30	195	191	160	85	---	230	294	44	131	23	22	14
31	209	---	235	75	---	233	---	55	---	23	22	---
TOTAL	11339	2941	10654	6514	8058	13295	59820	3461	3593	1483	3299	1125
MEAN	366	98.0	344	210	288	429	1994	112	120	47.8	106	37.5
MAX	3610	191	1120	456	1150	1930	30600	244	377	179	449	161
MIN	44	58	125	75	52	209	144	44	30	18	19	14
CFSM	1.28	.34	1.20	.73	1.01	1.50	6.97	.39	.42	.17	.37	.13
IN.	1.47	.38	1.39	.85	1.05	1.73	7.78	.45	.47	.19	.43	.15

CAL YR 1976 TOTAL 88152.2 MEAN 241 MAX 4200 MIN 9.2 CFSM .84 IN 11.47
WTR YR 1977 TOTAL 125591.0 MEAN 344 MAX 30600 MIN 14 CFSM 1.20 IN 16.34

03208600 NORTH FORK POUND RIVER LAKE AT POUND, VA

LOCATION.--Lat 37°07'27", long 82°37'52", Wise County, Hydrologic Unit 05070202, in control tower of North Fork Pound Dam at Pound, 1,200 ft (366 m) upstream from Stacy Branch, and 1.2 mi (1.9 km) upstream from South Fork Pound River.

DRAINAGE AREA.--17.2 mi² (44.5 km²).

PERIOD OF RECORD.--July 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (Corps of Engineers bench mark). Prior to Aug. 29, 1966, nonrecording gage at same site and datum.

REMARKS.--Lake is formed by rockfill dam. Spillway with crest at elevation 1,644.0 ft (501.09 m) is in a saddle 350 ft (107 m) southeast of dam. Except during major floods, all discharge will be through a diversion tunnel, the invert of the entrance of which is at elevation 1,556.5 ft (474.42 m). Storage began in September 1964 during construction with peak discharge affected thereafter; initial filling for regular operation started July 13, 1966. Total capacity at elevation 1,644.0 ft (501.09 m), top of spillway, is 11,290 acre-ft (13.9 hm³) of which 8,110 acre-ft (10.0 hm³) is flood-control storage for summer operations between elevations 1,611.0 ft (491.03 m) top of summer conservation pool, and 1,644.0 ft (501.09 m); an additional 1,290 acre-ft (1.59 hm³) is available for flood control during the period December to March between elevations 1,601.0 ft (487.98 m), top of winter conservation pool, and 1,611.0 ft (491.03 m); contents at established minimum pool, 1,601.0 ft (487.98 m), is 1,900 acre-ft (2.34 hm³); dead storage is 7 acre-ft (8,630 m³) below elevation 1,556.5 ft (474.42 m). Figures given herein represent total contents. Lake is used for flood control, low-water augmentation for water-quality control, and recreation.

COOPERATION.--Capacity tables furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 6,920 acre-ft (8.53 hm³) Apr. 8, 1977, elevation, 1,629.41 ft (496.644 m); minimum (after initial filling for regular operation), 1,660 acre-ft (2.05 hm³) Jan. 25, 1969, elevation, 1,598.62 ft (487.259 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 6,920 acre-ft (8.53 hm³) Apr. 8, elevation, 1,629.41 ft (496.644 m); minimum, 1,970 acre-ft (2.43 hm³) Jan. 12, elevation, 1,601.66 ft (488.186 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1610.20	3060	
Oct. 31	1606.23	2510	-550
Nov. 30	1602.07	2010	-500
Dec. 31	1602.07	2010	0
CAL YR 1976			-170
Jan. 31	1601.88	1980	-30
Feb. 28	1601.95	2000	+20
Mar. 31	1608.89	2870	+870
Apr. 30	1611.00	3310	+440
May 31	1611.38	3240	-70
June 30	1612.07	3350	+110
July 31	1610.66	3130	-220
Aug. 31	1610.68	3140	+10
Sept. 30	1610.58	3120	-20
WTR YR 1977			+60

03208700 NORTH FORK POUND RIVER AT POUND, VA

LOCATION.--Lat 37°07'52", long 82°37'36", Wise County, Hydrologic Unit 05070202, on right bank at Pound, 700 ft (213 m) downstream from Stacy Branch, 1,600 ft (488 m) downstream from North Fork Pound River Dam, and 0.9 mi (1.4 km) upstream from confluence with South Fork.

DRAINAGE AREA.--18.5 mi² (47.9 km²).

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,500.00 ft (457.200 m) above mean sea level (levels by Corps of Engineers). Prior to Oct. 1, 1965, on left bank at datum 44.88 ft (13.679 m) higher.

REMARKS.--Records good. Flow regulated since August 1966 by North Fork Pound River Lake (station 03208680). Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--16 years, 29.6 ft³/s (0.838 m³/s), 21.73 in/yr (552 mm/yr), adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,480 ft³/s (127 m³/s) Mar. 12, 1963, gage height, 61.58 ft (18.770 m), present datum, from rating curve extended above 650 ft³/s (18 m³/s) on basis of slope-area measurement of peak flow; minimum, 0.02 ft³/s (<0.001 m³/s) Sept. 16, 1964, Aug. 11, 12, Oct. 28, Nov. 10, 1969; minimum daily, 0.04 ft³/s (0.001 m³/s) Sept. 15, 1964, Aug. 11, 1969; minimum gage height, 47.66 ft (14.527 m) Sept. 16, 1964, present datum. Maximum discharge since construction of North Fork Pound River Dam in 1966, 1,010 ft³/s (28.6 m³/s) May 16, 1975, gage height, 55.04 ft (16.776 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 29, 1957, reached a stage of about 63.9 ft (19.5 m), present datum, from Corps of Engineers floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 860 ft³/s (24.4 m³/s) Apr. 4, gage height, 54.44 ft (16.593 m); minimum, 2.5 ft³/s (0.071 m³/s) Apr. 7; minimum daily, 2.7 ft³/s (0.076 m³/s) May 31 to June 5, June 13, 15-17, 30; minimum gage height, 48.16 ft (14.679 m) Oct. 16, Jan. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	22	15	16	5.0	35	5.2	64	2.7	16	4.2	4.6
2	5.0	22	17	16	4.9	27	5.3	26	2.7	40	4.2	3.6
3	4.6	26	17	15	5.0	26	6.2	16	2.7	43	4.2	3.6
4	4.8	28	15	17	5.2	41	326	13	2.7	16	4.2	3.6
5	6.7	29	12	19	5.5	33	66	16	2.7	3.0	4.6	3.6
6	5.4	25	12	19	5.6	41	6.2	13	3.4	3.0	4.4	3.6
7	16	23	16	19	5.2	30	5.5	13	3.0	3.0	4.4	3.9
8	20	26	53	15	7.6	19	95	13	3.0	3.0	4.4	3.5
9	43	21	43	13	4.8	18	332	13	3.2	3.0	4.4	3.9
10	76	16	82	19	9.0	18	311	13	3.0	3.2	4.2	3.9
11	120	16	68	15	9.7	18	300	13	3.0	3.0	4.4	3.9
12	113	16	35	11	14	19	324	13	3.0	3.0	4.5	3.9
13	98	16	61	9.1	35	35	321	4.2	2.7	3.0	6.1	3.9
14	22	16	79	21	38	19	274	5.1	3.0	3.0	4.6	4.6
15	27	16	94	49	56	6.6	80	4.9	2.7	3.0	4.6	4.6
16	20	16	65	50	45	6.6	16	4.8	2.7	3.0	4.2	5.2
17	89	18	26	52	40	7.2	16	4.8	2.7	3.0	4.2	5.2
18	18	19	20	40	46	20	11	4.9	3.0	3.0	4.2	4.6
19	23	19	15	13	37	27	7.7	3.9	3.0	3.2	4.2	4.6
20	21	19	17	13	33	36	6.6	3.6	3.2	3.2	4.2	4.6
21	21	19	18	26	36	35	3.6	3.0	3.0	3.0	4.2	4.6
22	17	19	12	33	36	30	3.6	3.0	3.0	3.2	4.2	4.1
23	17	19	9.0	26	37	16	4.9	3.2	4.3	3.0	4.2	4.1
24	17	19	9.5	20	76	7.1	4.6	3.2	3.4	3.2	4.6	4.1
25	70	16	8.5	20	102	6.6	4.6	3.0	3.2	3.2	4.6	4.1
26	88	15	9.6	16	110	6.7	4.6	3.0	3.2	3.2	4.4	4.6
27	106	7.3	9.5	10	95	6.0	4.1	3.0	3.0	3.2	4.6	4.6
28	46	7.5	16	7.7	75	6.0	7.3	3.0	3.0	3.2	4.4	4.6
29	23	11	16	6.0	---	5.9	60	3.0	3.0	3.2	4.6	4.6
30	21	16	16	9.1	---	6.7	82	3.0	2.7	3.2	4.6	4.6
31	22	---	16	5.1	---	7.2	---	2.7	---	3.2	4.6	---
TOTAL	1064.9	526.4	896.0	603.9	1009.3	620.7	2745.6	294.5	90.1	196.6	135.1	126.1
MEAN	34.4	17.5	28.9	19.5	36.0	20.0	91.5	9.50	3.00	6.34	4.36	4.16
MAX	120	29	83	52	110	41	332	65	4.3	43	6.1	5.7
MIN	4.6	7.3	8.5	5.1	4.9	5.9	3.6	2.7	2.7	3.0	4.2	3.6
(*)	-9	-8	.00	.00	.00	+14	+7	-1	+2	-4	-1	.00
MEAN#	25.4	9.49	28.9	19.5	38.9	34.0	98.5	8.50	5.00	2.34	3.36	4.16
CFSM#	1.37	.51	1.56	1.05	2.10	1.84	5.32	.46	.27	.13	.18	.22
IN#	1.58	.57	1.80	1.21	2.19	2.12	5.94	.53	.30	.15	.21	.24

CAL YR 1976 TOTAL 8137.7 MEAN 22.2 MAX 224 MIN 2.9 MEAN# 22.2 CFSM# 1.20 IN# 16.25
WTR YR 1977 TOTAL 8354.2 MEAN 22.9 MAX 332 MIN 2.7 MEAN# 22.9 CFSM# 1.24 IN# 16.84

* Change in contents, equivalent in cubic feet per second, in North Fork Pound River Lake; furnished by Corps of Engineers.

# Adjusted for change in contents.

03208800 POUND RIVER ABOVE INDIAN CREEK, AT POUND, VA

LOCATION.--Lat 37°07'26", long 82°36'29", Wise County, Hydrologic Unit 05070202, on left bank at Pound 1,600 ft (488 m) downstream from confluence of North and South Forks, 2,400 ft (732 m) upstream from bridge on U.S. Highway 23, and 3,800 ft (1,160 m) upstream from Indian Creek.

DRAINAGE AREA.--36.7 mi^2 (95.1 km^2).

PERIOD OF RECORD.--October 1965 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,535.64 ft (468.063 m) above mean sea level.

REMARKS.--Records good except those for period of doubtful or no gage-height record, June 26 to Aug. 23, which are fair. Some regulation since August 1966 by North Fork Pound River Lake (station 03208680) 1.4 mi (2.3 km) upstream. Corps of Engineers long-distance gage-height transmitter at station, recorder at North Fork Pound River Lake control tower. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--12 years, 59.3 ft^3/s (1.679 m^3/s), 21.94 in/yr (557 mm/yr), adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,460 ft^3/s (98.0 m^3/s) May 18, 1975, gage height, 19.44 ft (5.925 m), from rating curve extended above 970 ft^3/s (27 m^3/s); practically no flow Aug. 29, 1977, when flow was retarded by temporary dam; minimum daily discharge, 0.50 ft^3/s (0.014 m^3/s) July 2-4, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods of Jan. 29, 1957, and Mar. 12, 1963, reached stages of 25.7 ft (7.83 m) and 21.2 ft (6.46 m), respectively, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,070 ft^3/s (86.9 m^3/s) Apr. 4, gage height, 17.87 ft (5.447 m); practically no flow Aug. 29 when flow was retarded by temporary dam; minimum daily discharge, 3.2 ft^3/s (0.091 m^3/s) Aug. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	51	35	31	11	72	22	106	7.0	25	3.7	10
2	29	49	48	30	11	47	23	43	6.4	65	5.6	20
3	22	50	53	33	11	43	37	20	5.8	35	4.5	35
4	18	53	36	35	14	72	1750	26	5.7	20	3.5	11
5	18	50	30	36	12	72	916	20	5.0	9.0	3.2	25
6	20	39	46	33	11	83	206	22	15	7.0	9.0	55
7	26	39	120	36	11	58	112	17	10	6.0	5.0	14
8	84	43	150	31	14	34	222	22	8.2	5.4	3.7	17
9	414	38	110	32	14	30	400	64	10	5.0	15	10
10	165	29	90	42	14	27	370	42	7.9	5.4	35	7.4
11	157	28	75	38	21	26	360	30	7.4	6.0	10	6.0
12	135	28	80	35	25	31	400	21	7.2	5.0	8.0	5.2
13	59	27	125	35	73	311	390	17	6.6	8.0	40	5.5
14	39	26	110	51	72	113	320	15	7.0	5.4	50	6.7
15	45	26	90	104	92	54	140	15	6.0	4.5	30	6.1
16	38	26	85	110	109	33	30	14	5.2	4.0	14	16
17	40	26	66	95	93	26	27	13	5.0	36	12	31
18	35	30	55	70	71	37	25	12	5.7	3.5	11	12
19	36	30	44	54	45	41	23	11	6.0	10	7.0	9.4
20	41	29	46	45	43	64	22	10	8.0	7.0	6.0	9.0
21	39	28	45	37	43	58	19	9.0	9.0	4.5	5.0	6.1
22	32	31	32	40	47	56	18	12	6.0	5.0	4.7	6.7
23	28	32	29	36	65	45	20	14	35	4.0	4.5	6.1
24	28	27	26	29	239	40	26	16	32	3.7	17	5.8
25	80	24	26	28	248	35	22	11	17	4.0	9.4	6.1
26	176	21	29	24	206	32	20	10	19	4.5	5.6	7.0
27	162	19	28	18	193	30	19	8.8	27	3.7	4.9	8.6
28	102	20	35	15	150	29	18	8.0	21	3.3	4.8	9.8
29	53	34	37	15	---	28	149	8.2	18	4.0	4.8	7.0
30	46	35	34	14	---	27	143	7.4	13	5.2	3.9	5.5
31	54	---	40	12	---	26	---	7.4	---	4.0	4.0	---
TOTAL	2263	988	1855	1238	1958	1680	6249	651.8	342.1	318.1	344.8	380.0
MEAN	73.0	32.9	59.8	39.9	69.9	54.2	208	21.0	11.4	10.3	11.1	12.7
MAX	414	53	150	110	248	311	1750	106	35	65	50	55
MIN	18	19	26	12	11	26	18	7.4	5.0	3.3	3.2	5.2
(*)	-9	-8	.00	.00	.00	+14	+7	-1	+2	-4	.00	.00
MEAN‡	64.0	24.9	59.8	39.9	69.9	68.2	215	20.0	13.4	6.26	11.1	12.7
CFSM‡	1.74	.68	1.63	1.09	1.90	1.86	5.86	.54	.37	.17	.30	.35
IN‡	2.01	.76	1.88	1.26	1.98	2.14	6.54	.62	.41	.20	.35	.39

CAL YR 1976 TOTAL 17250.6 MEAN 47.1 MAX 571 MIN 5.9 MEAN‡ 47.1 CFSM‡ 1.28 IN‡ 17.41
WTR YR 1977 TOTAL 18267.8 MEAN 50.0 MAX 1750 MIN 3.2 MEAN‡ 50.0 CFSM‡ 1.36 IN‡ 18.54

* Change in contents, equivalent in cubic feet per second, in North Fork Pound River Lake; furnished by Corps of Engineers.

‡ Adjusted for change in contents.

03208850 POUND RIVER BELOW BOLD CAMP CREEK, AT POUND, VA

LOCATION.--Lat 37°07'19", long 82°35'55", Wise County, Hydrologic Unit 05070202, on left bank at Pound, 1,000 ft (305 m) upstream from bridge on State Highway 83, 1,500 ft (457 m) downstream from Bold Camp Creek, and 2,500 ft (762 m) downstream from Indian Creek.

DRAINAGE AREA.--61.2 mi² (158.5 km²).

PERIOD OF RECORD.--October 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,527.36 ft (465.539 m) above mean sea level.

REMARKS.--Records fair. Doubtful or no gage-height record Oct. 1 to Sept. 30. Some regulation since August 1966 by North Fork Pound River Lake (station 03208680) 2.6 mi (4.2 km) upstream. Corps of Engineers long-distance gage-height transmitter at station, recorder at North Fork Pound River Lake control tower. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--12 years, 95.9 ft³/s (2.716 m³/s), 21.28 in/yr (541 mm/yr), adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,290 ft³/s (178 m³/s) May 18, 1975, gage height, 25.64 ft (7.815 m), from rating curve extended above 1,900 ft³/s (54 m³/s); minimum, 1.0 ft³/s (0.028 m³/s) July 27, 28, 1966; minimum daily, 1.3 ft³/s (0.037 m³/s) July 4, 27, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods of Jan. 29, 1957, and Mar. 12, 1963, reached stages of about 30.8 ft (9.39 m) and 28.2 ft (8.60 m), respectively, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,350 ft³/s (152 m³/s) Apr. 4, gage height, 23.44 ft (7.145 m); minimum daily, 6.0 ft³/s (0.17 m³/s) Aug. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90	70	55	35	16	110	41	120	13	60	7.0	15
2	70	64	56	45	15	86	40	72	12	120	11	35
3	45	62	54	48	17	80	150	60	11	70	9.0	65
4	33	64	48	49	20	100	4000	54	11	46	8.4	22
5	27	58	42	50	26	110	2100	50	9.2	19	6.0	52
6	26	52	60	47	22	100	400	50	28	16	17	110
7	32	45	160	56	17	95	240	45	43	11	9.0	26
8	150	49	200	48	15	75	220	66	15	10	7.0	33
9	800	47	150	50	17	66	450	56	26	9.8	90	20
10	300	40	120	54	18	62	420	50	28	10	66	15
11	180	38	105	50	19	60	400	45	14	11	20	13
12	140	40	110	50	26	80	420	60	13	9.0	15	11
13	90	36	180	50	52	520	400	35	11	19	80	11
14	54	33	150	75	70	200	350	29	12	10	40	13
15	52	36	120	180	100	120	100	28	11	8.0	52	26
16	47	35	125	160	160	86	58	26	10	7.5	28	20
17	48	32	80	120	130	74	50	25	9.0	6.8	22	90
18	45	37	65	100	110	78	45	23	10	6.6	22	35
19	37	37	58	74	100	77	42	21	11	18	14	26
20	40	37	56	60	88	110	40	19	15	11	11	21
21	45	36	60	50	82	105	35	17	17	8.6	10	15
22	36	36	43	56	80	100	33	22	12	9.2	9.0	13
23	34	35	47	47	100	85	37	26	95	7.5	8.5	12
24	35	34	40	43	240	74	50	30	45	7.0	21	11
25	100	32	41	41	300	66	41	21	34	7.8	10	11
26	240	27	48	40	230	60	37	19	36	6.6	12	12
27	160	30	45	37	200	56	35	16	50	6.8	9.2	15
28	110	30	50	32	170	52	34	15	40	6.2	9.4	16
29	70	58	58	22	---	50	160	16	31	7.0	9.0	12
30	60	44	40	23	---	50	150	14	25	10	7.4	10
31	75	---	60	20	---	47	---	14	---	7.5	9.0	---
TOTAL	3271	1287	2506	1814	2490	3032	10578	1124	697.2	562.9	654.9	785
MEAN	106	42.9	80.8	58.5	88.9	97.8	353	36.3	23.2	18.2	21.1	26.2
MAX	800	70	200	180	300	520	4000	120	95	120	90	110
MIN	26	27	40	20	15	47	33	14	9.0	6.2	6.0	10
(*)	-9	-8	.00	.00	.00	+14	+7	-1	+2	-4	.00	.00
MEAN‡	96.5	34.9	80.8	58.5	88.9	112	360	35.3	25.2	14.2	21.1	26.2
CFSM‡	1.58	.57	1.32	.96	1.45	1.83	5.88	.58	.41	.23	.34	.43
IN‡	1.82	.64	1.52	1.11	1.51	2.11	6.56	.67	.46	.26	.39	.48

CAL YR 1976 TOTAL 25071.6 MEAN 68.5 MAX 1060 MIN 7.0 MEAN‡ 68.5 CFSM‡ 1.12 IN‡ 15.22
WTR YR 1977 TOTAL 28802.0 MEAN 78.9 MAX 4000 MIN 6.0 MEAN‡ 78.9 CFSM‡ 1.29 IN‡ 17.53

* Change in contents, equivalent in cubic feet per second, in North Fork Pound River Lake; furnished by Corps of Engineers.

‡ Adjusted for change in contents.

03208900 POUND RIVER NEAR GEORGES FORK, VA

LOCATION.--Lat 37°09'51", long 82°31'30", Dickenson County, Hydrologic Unit 05070202, on right bank 50 ft (15 m) upstream from bridge on State Highway 624, 150 ft (46 m) upstream from Camp Creek, and 2.6 mi (4.2 km) northwest of the community of Georges Fork.

DRAINAGE AREA.--82.5 mi² (213.7 km²).

PERIOD OF RECORD.--October 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,470.39 ft (448.175 m) above mean sea level.

REMARKS.--Records good. Some regulation since August 1966 by North Fork Pound River Lake (station 03208680) 13 mi (21 km) upstream. Corps of Engineers gage-height telemeter at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--14 years, 126 ft³/s (3.568 m³/s), 20.74 in/yr (527 mm/yr), adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,900 ft³/s (309 m³/s) May 18, 1975, gage height, 14.91 ft (4.545 m), from rating curve extended above 3,600 ft³/s (100 m³/s); minimum, 1.6 ft³/s (0.045 m³/s) Sept. 17, 18, 1964, gage height, 1.80 ft (0.549 m); minimum daily, 1.7 ft³/s (0.048 m³/s) Sept. 17, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods of Jan. 29, 1957, and Mar. 12, 1963, reached stages of 16.2 ft (4.94 m) and 14.4 ft (4.39 m), respectively, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,430 ft³/s (267 m³/s) Apr. 4, gage height, 14.02 ft (4.273 m); minimum, 5.3 ft³/s (0.15 m³/s) Aug. 5, gage height, 2.07 ft (0.631 m); minimum daily, 8.0 ft³/s (0.23 m³/s) July 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	123	88	71	66	22	145	54	132	17	56	9.1	16
2	85	83	75	60	21	112	53	94	16	163	14	39
3	59	82	66	66	23	103	114	82	14	99	12	91
4	43	83	62	70	27	132	5090	69	14	69	8.5	30
5	35	77	54	70	35	140	3070	66	12	24	8.2	60
6	35	69	52	64	30	134	547	65	30	20	22	146
7	42	59	217	74	23	124	316	58	55	17	12	37
8	192	66	268	62	20	95	279	74	19	15	9.3	44
9	1080	62	194	65	22	86	516	61	34	13	21	29
10	354	52	159	76	24	81	499	57	35	13	88	21
11	224	49	137	65	25	77	390	53	18	14	28	18
12	175	52	149	65	35	77	437	50	17	12	19	15
13	112	47	233	64	70	691	413	47	15	25	103	14
14	70	44	206	94	90	286	378	37	16	14	121	17
15	69	45	159	234	120	154	188	36	15	11	77	34
16	62	45	158	211	212	114	74	33	13	9.8	46	28
17	63	42	103	151	172	94	67	32	12	8.9	24	121
18	58	48	85	130	143	102	61	30	14	8.6	24	52
19	49	48	76	100	127	100	54	28	14	24	19	35
20	52	48	74	80	114	145	52	26	19	17	15	30
21	57	47	79	66	105	137	46	22	22	11	13	23
22	47	47	57	70	105	136	42	28	15	12	12	18
23	44	45	61	62	122	115	47	32	124	9.7	11	16
24	46	44	52	58	384	97	63	39	62	9.0	25	15
25	134	42	53	56	394	87	54	28	44	9.9	45	15
26	316	36	62	53	300	78	48	25	46	11	16	16
27	214	40	59	50	270	72	45	21	66	9.2	12	20
28	151	39	63	45	227	68	44	19	52	8.0	12	21
29	91	75	75	30	---	65	174	20	45	9.0	12	16
30	80	77	56	32	---	54	163	18	32	13	9.6	14
31	49	---	82	27	---	66	---	18	---	9.8	10	---
TOTAL	4265	1679	3295	2396	3262	3976	13378	1398	907	744.9	849.7	1051
MEAN	138	56.0	106	77.3	117	128	446	45.1	30.2	24.0	27.4	35.0
MAX	1080	88	268	234	394	691	5090	132	124	163	121	146
MIN	35	36	52	27	20	54	42	18	12	8.0	8.2	14
(*)	-9	-8	.00	.00	.00	+14	+7	-1	+2	-4	.00	.00
MEAN‡	129	48.0	106	77.3	117	142	453	44.1	32.2	20.0	27.4	35.0
CFSM‡	1.56	.58	1.28	.94	1.42	1.72	5.49	.53	.39	.24	.33	.42
IN‡	1.80	.65	1.48	1.08	1.48	1.98	6.12	.61	.44	.28	.38	.47

CAL YR 1976 TOTAL 33433.8 MEAN 91.3 MAX 1590 MIN 8.2 MEAN‡ 91.3 CFSM‡ 1.11 IN‡ 15.04
WTR YR 1977 TOTAL 37291.6 MEAN 102 MAX 5090 MIN 8.0 MEAN‡ 102 CFSM‡ 1.24 IN‡ 16.77

* Change in contents, equivalent in cubic feet per second, in North Fork Pound River Lake; furnished by Corps of Engineers.
‡ Adjusted for change in contents.

03208950 CRANES NEST RIVER NEAR CLINTWOOD, VA

LOCATION.--Lat 37°07'26", long 82°26'20", Dickenson County, Hydrologic Unit 05070202, on left bank 500 ft (152 m) downstream from Clinchfield Railway bridge, 1,000 ft (305 m) downstream from Rush Creek, and 2.1 mi (3.4 km) southeast of Clintwood.

DRAINAGE AREA.--66.5 mi² (172.2 km²).

PERIOD OF RECORD.--October 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,440.30 ft (439.003 m) above mean sea level.

REMARKS.--Records good except those for period of no gage-height record, Apr. 4-7, which are fair. Corps of Engineers gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--14 years, 82.8 ft³/s (2.345 m³/s), 16.91 in/yr (430 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,000 ft³/s (510 m³/s) Apr. 4, 1977, gage height, 26.09 ft (7.952 m), from floodmark, from rating curve extended above 3,100 ft³/s (88 m³/s) on basis of slope-area measurement of peak flow; minimum, 0.5 ft³/s (0.014 m³/s) Sept. 28, 1964, gage height, 0.91 ft (0.277 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 29, 1957, reached a stage of about 20.0 ft (6.1 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1000	1580	44.7	8.54	2.603	Apr. 4	Unknown	*18000	510	26.09	7.952

Minimum discharge, 4.8 ft³/s (0.14 m³/s) Aug. 5, 8, gage height, 1.25 ft (0.381 m).

REVISIONS.--The maximum discharge for water year 1967 has been revised to 8,860 ft³/s (251 m³/s) Mar. 7, 1967, gage height, 19.86 ft (6.053 m), superseding figure published in WSP 2108 and report for 1967.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	49	48	32	15	103	59	62	18	43	6.6	8.9
2	62	43	46	38	14	82	57	55	14	75	10	39
3	39	41	38	41	16	74	228	51	12	28	6.6	40
4	27	38	38	44	18	104	8000	45	11	19	5.8	21
5	21	34	34	45	25	130	4000	43	9.6	15	6.6	77
6	17	29	34	42	20	109	600	40	37	14	9.2	44
7	23	28	200	50	15	92	300	35	47	12	6.3	22
8	301	25	206	46	14	76	210	35	18	11	5.8	13
9	822	23	119	52	13	68	160	28	33	8.9	46	20
10	221	24	89	60	15	62	128	22	23	16	50	14
11	101	22	86	51	17	56	104	23	16	12	16	12
12	63	25	136	46	22	56	89	22	15	11	15	9.9
13	46	22	176	52	45	520	78	20	12	11	51	9.2
14	38	19	135	71	60	253	70	19	14	8.9	66	11
15	31	21	111	119	90	161	66	18	14	7.7	41	14
16	27	22	91	107	70	120	57	16	11	6.6	26	11
17	27	20	73	76	45	93	51	16	20	6.1	41	25
18	24	20	61	70	50	92	48	14	30	5.4	26	18
19	21	20	53	62	56	76	46	13	15	9.6	17	14
20	20	19	54	56	80	108	45	13	18	25	14	12
21	22	18	54	42	70	95	40	12	21	13	11	9.0
22	19	18	47	45	66	126	36	11	14	25	9.9	8.9
23	17	17	58	41	99	119	41	11	114	12	8.9	8.0
24	18	16	45	40	263	106	60	27	61	9.6	21	7.4
25	69	17	37	36	221	90	49	17	44	9.6	17	6.9
26	156	17	53	35	154	76	47	18	67	9.2	10	8.0
27	85	21	45	33	145	69	41	14	37	6.6	8.2	9.9
28	58	22	44	30	128	66	38	12	27	5.6	7.4	9.6
29	46	57	43	20	---	59	117	12	23	6.1	7.2	8.0
30	40	50	38	21	---	63	81	40	17	9.2	12	7.2
31	59	---	56	18	---	65	---	32	---	6.3	9.6	---
TOTAL	2622	797	2348	1521	1846	3367	14944	796	792.6	457.4	576.1	558.9
MEAN	84.6	26.6	75.7	49.1	65.9	109	498	25.7	26.4	14.8	18.6	18.6
MAX	822	57	206	119	263	520	8000	62	114	75	66	77
MIN	17	16	34	18	13	56	36	11	9.6	5.4	5.8	6.9
CFSM	1.27	.40	1.14	.74	.99	1.64	7.49	.39	.40	.22	.28	.28
IN.	1.47	.45	1.31	.85	1.03	1.88	8.36	.45	.44	.26	.32	.31

CAL YR 1976 TOTAL 22110.1 MEAN 60.4 MAX 1120 MIN 2.4 CFSM .91 IN 12.37
WTR YR 1977 TOTAL 30625.9 MEAN 83.9 MAX 8000 MIN 5.4 CFSM 1.26 IN 17.13

03208990 JOHN W. FLANNAGAN RESERVOIR NEAR HAYSI, VA

LOCATION.--Lat 37°14'00", long 82°20'56", Dickenson County, Hydrologic Unit 05070202, in control tower of John W. Flannagan Dam on Pound River, 1.3 mi (2.1 km) upstream from Blacklog Branch, and 3.7 mi (6.0 km) northwest of Haysi.

DRAINAGE AREA.--221 mi^2 (572 km^2).

PERIOD OF RECORD.--September 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (Corps of Engineers bench mark). Prior to Mar. 31, 1965, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by rockfill dam. Spillway with crest at elevation 1,410.0 ft (429.77 m) is in a saddle 0.3 mi (0.5 km) upstream from dam and is equipped with 6 radial gates 36 ft (11.0 m) high by 42 ft (12.8 m) wide. Except during major floods, all discharge will be through a diversion tunnel, the invert of the entrance of which is at elevation 1,230.0 ft (374.90 m). Storage began in September 1961 during construction with peak discharge affected thereafter; initial filling for regular operations started in March 1965. Total capacity at elevation 1,446.0 ft (440.74 m), top of gates, is 145,700 acre-ft (180 hm^3) of which 78,600 acre-ft (96.9 hm^3) is controlled flood storage for summer operations between elevations 1,396.0 ft (425.50 m), top of summer conservation pool, and 1,446.0 ft (440.74 m); an additional 16,500 acre-ft (20.3 hm^3) is available for flood control during the period December to March between elevations 1,380.0 ft (420.62 m), top of winter conservation pool, and 1,396.0 ft (425.50 m); contents at established minimum pool, 1,314.0 ft (400.51 m), is 12,000 acre-ft (14.8 hm^3); dead storage is 300 acre-ft (370,000 m^3) below elevation 1,230.0 ft (374.90 m). Figures given herein represent total contents. Reservoir is used for flood control, low-water augmentation for water-quality control, and recreation.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 116,500 acre-ft (144 hm^3) Apr. 7, 1977, elevation, 1,430.80 ft (436.108 m); minimum (after initial filling for regular operation), 11,800 acre-ft (14.5 hm^3) Apr. 1, 1965, elevation, 1,313.42 ft (400.330 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 116,500 acre-ft (144 hm^3) Apr. 7, elevation, 1,430.80 ft (436.108 m); minimum, 50,700 acre-ft (62.5 hm^3) Feb. 8, elevation, 1,380.13 ft (420.664 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1393.65	64400	
Oct. 31	1388.03	58400	-6000
Nov. 30	1380.79	51300	-7100
Dec. 31	1380.46	51000	-300
CAL YR 1976			-600
Jan. 31	1380.42	51000	0
Feb. 28	1380.51	51000	0
Mar. 31	1389.91	60400	+9400
Apr. 30	1396.84	68000	+7600
May 31	1394.01	64800	-3200
June 30	1396.07	67200	+2400
July 31	1396.44	67600	+400
Aug. 31	1398.24	69700	+2100
Sept. 30	1395.99	67100	-2600
WTR YR 1977			+2700

03209000 POUND RIVER BELOW FLANNAGAN DAM, NEAR HAYSI, VA

LOCATION.--Lat 37°14'13", long 82°20'36", Dickenson County, Hydrologic Unit 05070202, on right bank 1,100 ft (335 m) upstream from Blacklog Branch, 1,700 ft (518 m) downstream from John W. Flannagan Dam, 1.4 mi (2.3 km) upstream from mouth, and 3.4 mi (5.5 km) northwest of Haysi.

DRAINAGE AREA.--221 mi² (572 km²).

PERIOD OF RECORD.--July 1926 to current year. Monthly discharge only for some periods, published in WSP 1305. Prior to October 1960, published as Pound River near Haysi.

REVISED RECORDS.--WSP 953: 1940-41. WSP 1003: 1942, 1943(P). WSP 1275: 1927-30, 1931(M), 1932-39.

GAGE.--Water-stage recorder. Datum of gage is 1,200.00 ft (365.760 m) above mean sea level (Corps of Engineers bench mark). Prior to Dec. 20, 1939, nonrecording gage at site 3.8 mi (6.1 km) upstream at different datum. Dec. 20, 1939, to Sept. 30, 1963, water-stage recorder at site 4.6 mi (7.4 km) upstream at datum 79.91 ft (24.357 m) higher.

REMARKS.--Records good. Flow regulated since March 1965 by John W. Flannagan Reservoir (station 03208990) 1,700 ft (518 m) upstream and since August 1966 by North Fork Pound River Lake (station 03208680) 33 mi (53 km) upstream. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--51 years, 276 ft³/s (7.816 m³/s), 16.96 in/yr (431 mm/yr), adjusted for storage since March 1965.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 30,000 ft³/s (850 m³/s) Mar. 23, 1929, gage height, 16.5 ft (5.03 m), from floodmarks, site and datum then in use; minimum, less than 0.1 ft³/s (0.003 m³/s) on several days in September 1932. Maximum discharge since construction of John W. Flannagan Dam in 1965, 4,540 ft³/s (129 m³/s) Apr. 8, 1977, gage height, 8.20 ft (2.499 m); minimum, 1.2 ft³/s (0.034 m³/s) Feb. 16, 1968, gage height, 1.42 ft (0.433 m); minimum daily, 2.3 ft³/s (0.065 m³/s) June 26-29, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,540 ft³/s (129 m³/s) Apr. 8, gage height, 8.20 ft (2.499 m); minimum, 41 ft³/s (1.16 m³/s) Apr. 5, Sept. 30, gage height, 2.06 ft (0.628 m); minimum daily, 46 ft³/s (1.30 m³/s) Oct. 19, Aug. 24-31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	258	182	166	73	496	55	324	104	52	52	47
2	47	284	182	166	73	328	55	324	53	52	52	47
3	47	324	158	166	75	228	55	312	53	52	52	47
4	145	324	130	166	75	215	63	200	53	52	52	47
5	238	324	130	168	140	332	56	200	53	52	77	47
6	184	275	130	168	168	396	60	163	53	52	100	120
7	183	221	434	168	138	368	765	115	52	52	100	176
8	656	174	859	147	82	290	4210	115	52	52	90	176
9	535	174	585	153	55	218	4410	115	52	52	60	125
10	1300	174	390	166	55	185	4350	114	52	52	50	78
11	2000	174	320	166	56	185	4390	114	52	52	47	55
12	1340	215	320	145	77	188	4370	92	52	52	47	66
13	320	237	519	117	153	200	3380	60	52	52	47	100
14	320	237	618	153	110	185	923	60	52	52	47	100
15	320	225	524	471	160	140	606	60	52	52	47	102
16	480	206	398	580	324	124	209	56	52	52	72	104
17	372	208	304	332	544	154	96	98	52	52	84	104
18	70	206	225	208	693	241	96	135	52	52	84	145
19	46	206	177	204	504	293	106	135	52	52	84	170
20	88	206	177	206	268	457	135	135	52	52	68	170
21	168	206	180	208	268	544	150	138	52	52	47	125
22	195	191	145	206	247	544	150	138	52	52	47	104
23	203	177	77	164	209	243	153	138	52	52	47	106
24	258	177	77	115	212	52	153	138	52	52	46	106
25	301	177	77	117	443	52	153	138	52	52	46	106
26	647	177	153	117	997	52	153	138	52	52	46	82
27	745	145	188	117	1210	52	153	138	52	52	46	72
28	693	133	188	119	958	52	145	138	52	52	46	68
29	594	133	191	119	---	53	203	138	52	52	46	77
30	377	153	158	88	---	53	324	140	52	52	46	58
31	258	---	138	71	---	55	---	140	---	52	46	---
TOTAL	13209	6321	8334	5657	8367	7025	30127	4449	1617	1612	1821	2936
MEAN	426	211	269	182	299	227	1004	144	53.9	52.0	58.7	97.9
MAX	2000	324	859	580	1210	544	4410	324	104	52	100	176
MIN	46	133	77	71	55	52	55	56	52	52	46	47
(*)	-107	-127	-5	.00	.00	+167	+135	-53	+42	+3	+34	-44
MEAN‡	319	83.7	264	182	299	394	1139	90.5	95.9	55.0	92.7	53.9
CFSM‡	1.44	.38	1.19	.82	1.35	1.78	5.15	.41	.43	.25	.42	.24
IN‡	1.66	.42	1.37	.94	1.41	2.05	5.75	.47	.48	.29	.48	.27

CAL YR 1976 TOTAL 83785 MEAN 229 MAX 2380 MIN 29 MEAN‡ 228 CFSM‡ 1.03 IN‡ 14.03
WTR YR 1977 TOTAL 91475 MEAN 251 MAX 4410 MIN 46 MEAN‡ 255 CFSM‡ 1.15 IN‡ 15.59

* Change in contents, equivalent in cubic feet per second, in North Fork Pound River Lake and John W. Flannagan Reservoir; furnished by Corps of Engineers.

‡ Adjusted for change in contents.

03209200 RUSSELL FORK AT BARTLICK, VA

LOCATION.--Lat 37°14'45", long 82°19'25", Dickenson County, Hydrologic Unit 05070202, on left bank at Bartlick, just upstream from bridge on State Highway 611, 0.2 mi (0.3 km) downstream from Pound River, and 1.1 mi (1.8 km) upstream from Fall Branch.

DRAINAGE AREA.--526 mi^2 (1,362 km^2).

PERIOD OF RECORD.--October 1962 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,165.00 ft (355.092 m) above mean sea level.

REMARKS.--Records good except those for period of no gage-height record, July 11 to Aug. 23, which are fair. Flow regulated since March 1965 by John W. Flannagan Reservoir (station 03208990) 1.9 mi (3.1 km) upstream and since August 1966 by North Fork Pound River Lake (station 03208680) 35 mi (56 km) upstream. Corps of Engineers gage-height telemeter at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--15 years, 683 ft^3/s (19.34 m^3/s), 17.63 in/yr (448 mm/yr), adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft^3/s (1,420 m^3/s) Apr. 4, 1977, gage height, 27.55 ft (8.397 m), from rating curve extended above 11,000 ft^3/s (310 m^3/s) on basis of computation of peak flow over dam; minimum, 5.3 ft^3/s (0.15 m^3/s) Sept. 18, 1964, gage height, 5.03 ft (1.533 m); minimum daily, 5.5 ft^3/s (0.16 m^3/s) Sept. 17, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 29, 1957, reached a stage of about 30 ft (9.1 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 50,000 ft^3/s (1,420 m^3/s) Apr. 4, gage height, 27.55 ft (8.397 m); minimum, 66 ft^3/s (1.87 m^3/s) Sept. 30, gage height, 7.16 ft (2.182 m); minimum daily, 74 ft^3/s (2.10 m^3/s) Sept. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	534	452	347	292	135	972	270	637	179	220	86	92
2	356	450	361	341	130	723	265	595	96	270	90	92
3	195	486	314	379	136	562	973	588	94	200	82	99
4	268	441	274	386	151	563	26400	441	91	160	78	83
5	247	469	262	374	234	765	16900	435	87	130	130	74
6	230	403	252	347	267	796	2990	423	101	115	170	300
7	254	338	1250	403	206	736	3030	331	174	106	190	265
8	1420	282	2210	351	135	611	6010	325	124	99	230	275
9	4470	274	1270	403	106	498	6030	295	120	96	230	222
10	2540	270	872	441	115	438	5800	270	160	98	200	134
11	2550	272	748	368	124	415	5740	256	140	100	240	102
12	1670	315	955	352	164	407	5670	222	120	110	160	113
13	519	328	1630	316	343	2330	4370	167	110	130	430	142
14	471	316	1460	433	355	1560	1280	163	200	110	460	149
15	437	300	1130	888	472	960	926	156	190	100	440	160
16	575	291	870	1020	596	707	514	145	140	96	270	167
17	679	290	675	607	729	595	358	179	220	90	450	186
18	156	286	522	524	888	693	336	227	270	86	480	260
19	111	286	411	475	740	710	342	222	170	85	270	256
20	150	286	404	431	552	950	435	217	150	83	190	241
21	237	286	421	408	527	1040	343	212	160	80	130	174
22	256	275	286	369	509	1060	366	208	140	160	110	145
23	262	254	282	300	536	745	364	222	500	120	105	142
24	314	245	234	272	1410	646	453	212	400	100	179	138
25	464	263	227	272	1820	639	423	217	350	100	203	134
26	1420	244	343	266	1950	392	393	217	310	95	134	109
27	1340	220	357	258	1940	350	369	212	390	90	109	106
28	1040	208	352	237	1570	328	367	203	620	85	96	138
29	837	275	362	194	---	312	567	203	270	82	91	113
30	587	338	287	171	---	309	672	198	220	85	87	86
31	688	---	358	150	---	306	---	217	---	85	86	---
TOTAL	25826	9461	19753	12073	16728	21770	92986	8610	6086	3566	6006	4695
MEAN	833	315	637	389	597	702	3099	278	203	115	194	157
MAX	4470	486	2210	1020	1940	2330	26400	637	500	270	480	300
MIN	111	208	227	150	106	306	265	145	87	80	78	74
(*)	-107	-127	-5	.00	.00	+167	+135	-53	+42	+3	+34	-44
MEAN‡	726	188	632	389	597	869	3234	225	245	118	228	113
CFSM‡	1.38	.36	1.20	.74	1.13	1.65	6.15	.43	.47	.22	.43	.21
IN‡	1.59	.40	1.38	.85	1.18	1.90	6.86	.50	.52	.25	.50	.23

CAL YR 1976 TOTAL 181563 MEAN 496 MAX 9780 MIN 64 MEAN‡ 495 CFSM‡ 0.94 IN‡ 12.79
WTR YR 1977 TOTAL 227556 MEAN 623 MAX 26400 MIN 74 MEAN‡ 627 CFSM‡ 1.19 IN‡ 16.16

* Change in contents, equivalent in cubic feet per second, in North Fork Pound River Lake and John W. Flannagan Reservoirs; furnished by Corps of Engineers.

‡ Adjusted for change in contents.

03471500 SOUTH FORK HOLSTON RIVER AT RIVERSIDE, NEAR CHILHOWIE, VA

LOCATION.--Lat 36°45'37", long 81°37'53", Smyth County, Hydrologic Unit 06010102, on right bank 400 ft (122 m) upstream from highway bridge at Riverside, 900 ft (274 m) upstream from Spring Branch, 3.2 mi (5.1 km) downstream from Redstone Branch, 4.0 mi (6.4 km) southeast of Chilhowie, and at mile 97.2 (156.4 km).

DRAINAGE AREA.--76.1 mi² (197.1 km²).

PERIOD OF RECORD.--October 1920 to December 1931, July 1942 to current year. Monthly discharge only for some periods, published in WSP 1306. Prior to October 1924, published as "near Chilhowie". June 1907 to December 1909, at site 4.5 mi (7.2 km) downstream also published as "near Chilhowie"; records not equivalent.

REVISED RECORDS.--WSP 1033: 1943-44(m). WSP 1306: Drainage area, 1921-31(M).

GAGE.--Water-stage recorder. Datum of gage is 2,106.77 ft (642.143 m) above mean sea level. Nov. 1, 1920, to Nov. 14, 1931, nonrecording gage at site 400 ft (122 m) downstream at same datum.

REMARKS.--Records good. Prior to August 1951, diurnal fluctuation at low flow caused by mill 500 ft (152 m) above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--46 years, 111 ft³/s (3.144 m³/s), 19.81 in/yr (503 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,000 ft³/s (170 m³/s) June 12, 1923, gage height, 9.0 ft (2.74 m), from graph based on gage readings, site and datum then in use, from rating curve extended above 3,600 ft³/s (100 m³/s); minimum recorded, 2 ft³/s (0.06 m³/s) Aug. 26, Oct. 15, 1943, Aug. 9, 11, 1944, Oct. 19, 1945, but may have been less in 1925 and 1926 before installation of water-stage recorder; minimum daily, 8 ft³/s (0.23 m³/s) July 19, 1926.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 650 ft³/s (18 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1330	1220	34.6	4.74	1.445	Mar. 13	1030	1080	30.6	4.46	1.359
Feb. 24	1400	1310	37.1	4.91	1.497	Apr. 5	0400	*5240	148	8.89	2.710

Minimum discharge, 22 ft³/s (0.62 m³/s) Sept. 30, gage height, 1.18 ft (0.360 m), caused by regulation from unknown source.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	124	129	95	107	37	201	197	89	50	81	36	29
2	90	121	94	105	36	211	173	86	47	101	35	29
3	67	112	85	95	37	175	260	84	48	79	36	29
4	56	104	79	93	39	170	1590	87	43	69	45	32
5	49	94	74	93	54	182	2870	86	42	62	40	35
6	45	86	72	90	49	194	910	89	54	57	36	33
7	65	79	423	90	40	204	549	87	66	53	34	33
8	241	75	396	80	35	189	389	86	49	50	34	45
9	865	70	262	82	38	167	293	81	50	48	36	39
10	497	68	198	83	51	149	237	78	48	49	35	36
11	253	66	167	75	63	135	282	75	43	54	35	35
12	172	68	179	70	84	130	177	70	43	73	34	32
13	134	62	217	68	133	758	157	69	42	90	36	32
14	110	59	212	72	148	501	146	66	49	68	36	32
15	94	60	189	65	155	389	134	65	46	55	36	31
16	84	63	167	88	130	229	126	62	42	48	34	32
17	82	60	146	86	111	186	116	59	46	43	39	57
18	75	60	129	84	99	182	110	57	42	43	62	40
19	68	61	115	80	96	165	103	55	45	41	42	36
20	67	62	123	78	92	284	99	54	57	39	37	35
21	60	61	131	75	83	276	94	53	50	41	35	34
22	63	61	111	71	103	239	89	52	46	40	35	33
23	60	58	110	74	116	197	90	50	53	38	33	32
24	60	56	108	67	772	176	94	49	58	36	34	32
25	121	56	102	66	666	156	87	49	73	37	33	31
26	394	56	104	64	455	141	84	54	103	36	32	32
27	262	58	95	60	505	128	79	50	94	35	32	32
28	185	59	92	56	421	119	76	48	97	34	31	32
29	149	88	91	45	---	111	99	46	90	37	31	32
30	128	102	78	40	---	163	92	45	78	40	30	29
31	137	---	115	38	---	220	---	47	---	36	29	---
TOTAL	4865	2214	4559	2360	4656	6725	9722	2028	1694	1613	1113	1021
MEAN	157	73.8	147	76.1	166	217	324	65.4	56.5	52.0	35.9	34.0
MAX	865	129	423	107	772	758	2870	89	103	101	62	57
MIN	45	56	72	38	35	111	76	45	42	34	29	29
CFSM	2.06	.97	1.93	1.00	2.18	2.85	4.26	.86	.74	.68	.47	.45
IN.	2.38	1.08	2.23	1.15	2.28	3.29	4.75	.99	.83	.79	.54	.50

CAL YR 1976 TOTAL 39176 MEAN 107 MAX 1040 MIN 24 CFSM 1.41 IN 19.15
WTR YR 1977 TOTAL 42570 MEAN 117 MAX 2870 MIN 29 CFSM 1.54 IN 20.81

03473000 SOUTH FORK HOLSTON RIVER AT VESTAL, VA

LOCATION.--Lat 36°39'00", long 81°50'39", Washington County, Hydrologic Unit 06010102, on right bank 500 ft (152 m) upstream from bridge on U.S. Highway 58 at Vestal, 0.7 mi (1.1 km) downstream from Laurel Creek, 3.2 mi (5.1 km) northwest of Damascus, 4.9 mi (7.9 km) upstream from Middle Fork, and at mile 77.2 (124.2 km).

DRAINAGE AREA.--301 mi² (780 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1931 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1306: 1932-33(M).

GAGE.--Water-stage recorder. Datum of gage is 1,792.30 ft (546.293 m) above mean sea level.

REMARKS.--Records good. Some diurnal fluctuation caused by powerplant above station. Tennessee Valley Authority gage-height radio transmitter at station, receiver and recorder at Elizabethton, TN.

AVERAGE DISCHARGE.--46 years, 474 ft³/s (13.42 m³/s), 21.39 in/yr (543 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 ft³/s (623 m³/s) Apr. 5, 1977, gage height, 17.11 ft (5.215 m), from rating curve extended above 10,000 ft³/s (280 m³/s) on basis of slope-area measurement of peak flow; minimum, 30 ft³/s (0.85 m³/s) Oct. 14, 1941, Dec. 24, 1943, gage height, 2.16 ft (0.658 m); minimum daily, 60 ft³/s (1.70 m³/s) Sept. 18, 1954, Sept. 26, 27, 1964.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base on 3,000 ft³/s (85 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1315	5380	152	9.29	2.832	Mar. 13	1330	3080	87.2	7.24	2.207
Feb. 24	1730	4220	120	8.35	2.545	Apr. 5	0215	*22000	623	17.11	5.215

Minimum discharge, 124 ft³/s (3.51 m³/s) Sept. 2; minimum gage height, 2.76 ft (0.841 m) Feb. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	864	486	434	560	170	1200	1020	550	263	649	147	137
2	714	447	416	520	170	904	819	520	197	824	160	128
3	461	424	374	480	180	732	1340	475	190	633	182	180
4	343	401	344	471	190	705	4840	565	175	490	200	238
5	278	370	318	463	264	767	12800	545	165	386	185	208
6	240	341	307	448	229	870	3500	520	350	328	150	177
7	271	318	1370	474	200	866	2130	520	435	286	137	195
8	1050	300	1490	413	160	784	1580	550	249	252	155	355
9	3860	282	1060	430	170	680	1260	485	249	229	193	286
10	2250	277	810	469	243	605	1050	445	223	214	202	328
11	1170	266	683	383	278	557	902	405	195	266	226	622
12	780	284	867	350	353	552	788	368	193	286	170	319
13	580	256	1200	330	560	2500	710	337	182	298	177	235
14	485	240	1070	404	630	1830	655	319	346	238	229	211
15	410	257	919	549	652	1210	605	298	242	202	229	193
16	361	285	809	526	580	929	560	278	202	185	182	214
17	369	263	708	426	475	747	520	259	368	175	232	932
18	335	263	624	410	430	671	485	249	435	167	570	555
19	292	263	552	390	432	603	465	242	302	165	319	405
20	287	261	616	380	437	906	450	229	373	177	235	319
21	299	256	752	370	381	944	410	220	319	160	197	259
22	268	254	660	354	406	894	386	211	286	165	187	223
23	252	240	580	357	545	749	400	208	465	167	182	202
24	252	231	537	337	2720	664	450	202	555	147	177	190
25	530	231	488	330	2620	595	405	205	688	145	182	180
26	1610	230	511	311	1770	536	373	226	872	187	155	175
27	1140	253	450	300	2090	485	355	208	842	147	145	177
28	794	250	429	270	1760	452	337	195	866	135	147	182
29	616	452	439	230	---	430	704	187	860	147	152	160
30	520	475	375	200	---	986	611	190	740	214	137	155
31	550	---	729	180	---	1310	---	197	---	157	132	---
TOTAL	22247	9156	20901	12115	19095	26663	40910	10408	11827	8221	6073	8140
MEAN	718	305	674	391	682	860	1364	336	394	265	196	271
MAX	3860	486	1490	560	2720	2500	12800	565	872	824	570	932
MIN	240	230	307	180	160	430	337	187	165	135	132	128
CFSM	2.39	1.01	2.24	1.30	2.27	2.86	4.53	1.12	1.31	.88	.65	.90
IN.	2.75	1.13	2.58	1.50	2.36	3.30	5.06	1.29	1.46	1.02	.75	1.01

CAL YR 1976 TOTAL 170611 MEAN 466 MAX 4070 MIN 88 CFSM 1.55 IN 21.09
WTR YR 1977 TOTAL 195756 MEAN 536 MAX 12800 MIN 128 CFSM 1.78 IN 24.19

03473000 SOUTH FORK HOLSTON RIVER AT VESTAL, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1950, 1952, 1968 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1949 to September 1950, October 1967 to September 1973.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
OCT												
26...	1010	1770	90	38	2	9.7	3.3	1.5	1.8	44	5.6	1.3
DEC												
03...	1140	372	122	47	6	12	4.2	5.9	1.6	50	12	2.7
JAN												
03...	1140	480	118	58	8	15	4.9	1.7	1.4	60	4.5	2.4
FEB												
22...	1120	324	133	63	12	16	5.5	2.1	1.4	62	4.3	3.3
MAY												
13...	1130	342	125	61	8	16	5.0	2.2	1.4	64	3.9	2.8
JUL												
11...	1300	242	133	63	6	16	5.6	1.7	1.5	69	3.8	1.7
AUG												
26...	1120	155	189	80	10	21	6.8	7.4	1.8	86	18	3.7

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED NITRATE (N) (MG/L)	DISSOLVED NITRATE (NO3) (MG/L)	DISSOLVED NITRITE (N) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO PHOSPHATE (PO4) (MG/L)	DISSOLVED IRON (FE) (UG/L)
OCT											
26...	.1	5.8	60	53	.39	1.7	.00	.39	.00	.00	10
DEC											
03...	.1	5.3	68	75	.35	1.5	.00	.35	.01	.03	10
JAN											
03...	.0	5.8	63	67	.58	2.6	.00	.58	.00	.00	1
FEB											
22...	.1	4.3	81	70	.55	2.4	.00	.55	.00	.00	20
MAY											
13...	.0	3.6	77	68	.28	1.2	.03	.31	.00	.00	1
JUL											
11...	.1	5.1	72	71	.31	1.4	.00	.31	.01	.03	50
AUG											
26...	.0	6.1	108	109	.37	1.6	.01	.38	.00	.00	10

03474000 MIDDLE FORK HOLSTON RIVER AT SEVENMILE FORD, VA

LOCATION.--Lat 36°48'26", long 81°37'20", Smyth County, Hydrologic Unit 06010102, on right bank at downstream side of bridge on U.S. Highway 11 at Sevenmile Ford, 0.3 mi (0.5 km) upstream from Meade Creek, 3.3 mi (5.3 km) downstream from Walker Creek, and at mile 32.1 (51.6 km).

DRAINAGE AREA.--132 mi² (342 km²).

PERIOD OF RECORD.--July 1942 to current year.

REVISED RECORDS.--WSP 973: 1942(m). WSP 1306: 1947(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,960.00 ft (597.408 m) above mean sea level.

REMARKS.--Records good. Prior to April 1977, some diurnal fluctuation at low flow caused by mill 9 mi (14 km) above station. Since May 1936, flow occasionally regulated by the filling or draining of Hungry Mother Lake on Hungry Mother Creek, capacity, about 1,600 acre-ft (1.97 hm³). Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--35 years, 165 ft³/s (4.673 m³/s), 16.98 in/yr (431 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,900 ft³/s (309 m³/s) Apr. 5, 1977; maximum gage height, 10.75 ft (3.277 m) Jan. 29, 1957; minimum, 9 ft³/s (0.25 m³/s) Sept. 26, 1944; minimum daily, 20 ft³/s (0.57 m³/s) Sept. 26, 1944, Aug. 2, 1964.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft³/s (57 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1200	3240	91.8	4.18	1.274	Apr. 5	0400	*10900	309	8.54	2.603
Apr. 4	1140	10400	295	8.31	2.533						

Minimum discharge, 40 ft³/s (1.13 m³/s) Sept. 2, 25. 29. 30, gage height, 1.12 ft (0.341 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	342	177	141	260	57	320	235	148	100	161	54	43
2	210	161	135	215	56	265	200	141	77	930	51	41
3	121	145	122	186	57	235	357	131	66	290	58	54
4	88	135	112	169	60	230	5990	138	61	182	56	59
5	74	122	107	169	83	225	5820	141	58	135	50	47
6	65	110	105	165	72	220	1150	205	135	112	50	47
7	92	102	492	173	64	210	680	173	200	102	47	47
8	906	97	428	152	52	195	500	156	100	95	47	79
9	2050	92	285	152	55	186	378	135	105	83	51	70
10	684	92	225	152	75	173	314	122	95	79	50	63
11	332	88	195	125	112	169	275	112	79	165	48	56
12	225	102	250	120	186	161	245	105	72	130	47	51
13	173	90	275	110	270	545	220	97	66	118	50	50
14	141	83	245	128	280	428	205	92	97	95	61	50
15	122	95	220	169	314	314	186	90	95	83	56	48
16	110	135	205	173	275	260	173	86	75	75	50	54
17	112	131	182	122	220	225	161	81	68	70	81	131
18	105	135	165	120	190	225	152	77	70	65	122	70
19	95	131	148	115	186	210	145	79	66	63	66	58
20	95	131	169	110	177	275	138	72	72	59	56	53
21	107	125	210	110	161	270	128	68	75	63	51	48
22	100	122	177	105	200	275	125	66	63	70	50	45
23	95	115	160	105	265	260	131	66	118	63	56	43
24	92	112	156	105	940	240	145	65	115	56	51	41
25	460	110	145	100	930	210	131	65	141	56	50	41
26	1010	110	152	92	536	165	122	72	169	59	47	43
27	399	112	138	90	527	145	115	66	141	54	45	43
28	265	112	138	88	436	138	112	63	152	53	44	44
29	200	186	141	83	---	131	198	61	182	61	43	41
30	173	165	128	70	---	240	169	59	130	77	44	40
31	195	---	344	60	---	296	---	79	---	59	47	---
TOTAL	9240	3623	6095	4093	6736	7441	18892	3111	3071	3771	1679	1600
MEAN	298	121	197	132	241	240	630	100	102	122	54.2	53.3
MAX	2050	186	492	260	940	545	5990	205	200	930	122	131
MIN	65	83	105	60	52	131	112	59	58	53	43	40
CFSM	2.26	.92	1.49	1.00	1.83	1.82	4.77	.76	.77	.92	.41	.40
IN.	2.60	1.02	1.72	1.15	1.90	2.10	5.32	.88	.87	1.06	.47	.45

CAL YR 1976 TOTAL 58563 MEAN 160 MAX 2050 MIN 36 CFSM 1.21 IN 16.50
WTR YR 1977 TOTAL 69352 MEAN 190 MAX 5990 MIN 40 CFSM 1.44 IN 19.54

03475000 MIDDLE FORK HOLSTON RIVER NEAR MEADOWVIEW, VA

LOCATION.--Lat 36°42'47", long 81°49'08", Washington County, Hydrologic Unit 06010102, on left bank 48 ft (15 m) downstream from bridge on State Highway 803, 0.9 mi (1.4 km) upstream from Cedar Creek, 4.1 mi (6.6 km) southeast of Meadowview, and at mile 13.2 (21 km).

DRAINAGE AREA.--211 mi² (546 km²).

PERIOD OF RECORD.--October 1931 to September 1953, May 1976 to current year. Monthly discharge only for October 1931, published in WSP 1306.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1276: 1932-34.

GAGE.--Water-stage recorder. Datum of gage is 1,820.22 ft (554.803 m) above mean sea level.

REMARKS.--Records good. Prior to 1954, flow regulated by powerplant 0.9 mi (1.4 km) above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--23 years, 233 ft³/s (6.599 m³/s), 15.00 in/yr (381 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,000 ft³/s (312 m³/s) Apr. 5, 1977, gage height, 12.57 ft (3.831 m); minimum, 6 ft³/s (0.17 m³/s) Nov. 10, 1933, Dec. 4, 1936, Jan. 21, 22, Feb. 1, 1940, Jan. 6, 1942, Oct. 15, 16, 31, 1943; minimum daily, 7 ft³/s (0.20 m³/s) Nov. 19, 1950.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 29, 1957, reached a stage of 11.8 ft (3.60 m), from floodmark, discharge, 10,000 ft³/s (283 m³/s), and flood of Dec. 10, 1972, reached a stage of 11.0 ft (3.35 m), from floodmark, discharge, 8,540 ft³/s (242 m³/s), from information by Tennessee Valley Authority. Flood of Mar. 30, 1975, reached a stage of 10.37 ft (3.161 m), discharge, 7,410 ft³/s (210 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft³/s (57 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1730	3830	108	7.83	2.387	Apr. 5	1035	*11000	312	12.57	3.831
Oct. 26	0800	2390	67.7	6.24	1.902						

Minimum discharge, 75 ft³/s (2.12 m³/s) Sept. 30, gage height, 1.97 ft (0.600 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	422	299	213	445	96	467	372	237	141	229	95	80
2	352	274	207	345	94	388	314	230	136	931	93	78
3	220	254	191	314	94	343	443	215	120	425	92	80
4	164	240	179	288	100	319	5990	217	112	258	99	97
5	139	220	170	285	150	315	8220	215	107	200	90	88
6	121	201	164	284	120	305	2190	252	118	173	88	80
7	128	188	561	288	100	295	1230	247	274	155	86	83
8	1010	182	674	261	90	277	897	228	161	142	105	97
9	2870	173	453	263	95	260	699	204	144	131	114	105
10	1510	167	352	269	141	249	589	189	151	126	106	95
11	634	164	307	224	186	239	519	179	126	192	95	89
12	429	185	352	200	275	232	467	170	118	190	90	83
13	333	173	426	180	386	512	424	163	112	175	89	79
14	281	158	380	227	431	550	392	158	123	149	102	79
15	240	158	345	280	445	414	362	153	138	131	106	78
16	217	194	325	303	404	366	335	148	127	120	94	81
17	217	201	288	233	323	308	312	143	144	113	103	107
18	207	201	264	210	289	294	295	140	133	109	208	135
19	185	201	244	200	273	291	282	139	120	105	129	102
20	176	197	250	190	276	348	268	136	155	102	104	93
21	188	191	310	185	247	366	255	132	138	101	95	88
22	176	185	274	180	285	366	243	127	121	111	94	83
23	167	176	260	175	396	353	240	126	148	105	102	80
24	164	170	254	170	974	325	258	123	180	98	96	79
25	393	170	234	160	1310	297	243	123	213	99	93	78
26	1750	167	244	150	744	257	227	131	250	99	87	79
27	715	173	230	150	668	230	217	127	204	95	83	82
28	457	170	223	140	611	217	209	119	201	91	83	81
29	352	236	237	130	---	208	274	116	231	93	81	78
30	303	247	213	120	---	326	262	114	204	121	80	76
31	322	---	476	100	---	472	---	122	---	104	83	---
TOTAL	14842	5913	9300	6949	9603	10161	27028	5123	4650	5273	3085	2693
MEAN	479	197	300	224	343	328	901	165	155	170	99.5	89.8
MAX	2870	299	674	445	1310	550	8220	252	274	931	208	107
MIN	121	158	164	100	90	208	209	114	107	91	80	76
CFSM	2.27	.93	1.42	1.06	1.63	1.56	4.27	.78	.74	.81	.47	.43
IN.	2.62	1.04	1.64	1.23	1.69	1.79	4.77	.90	.82	.93	.54	.47

WTR YR 1977 TOTAL 104620 MEAN 287 MAX 8220 MIN 76 CFSM 1.36 IN 18.44

03478400 BEAVER CREEK AT BRISTOL, VA

LOCATION.--Lat 36°37'54", long 82°08'02", Bristol City, Hydrologic Unit 06010102, on right bank 50 ft (15 m) upstream from bridge on State Highway 1405, 75 ft (23 m) downstream from Goose Creek, 0.9 mi (1.4 km) downstream from Clear Creek, 3.7 mi (6.0 km) northeast of Bristol, VA post office, and at mile 20.6 (33.1 km).

DRAINAGE AREA.--27.7 mi² (71.7 km²).

PERIOD OF RECORD.--July 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,780.98 ft (542.843 m) above mean sea level.

REMARKS.--Records good. Small diurnal fluctuation at low flow caused by withdrawal of water, which is returned to stream 600 ft (183 m) above station, for car-washing operation. Since September 1965, some regulation at high flow by flood-control reservoirs, capacity, 7,600 acre-ft (9.37 hm³). Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--20 years, 35.6 ft³/s (1.008 m³/s), 17.45 in/yr (443 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,090 ft³/s (30.9 m³/s) Apr. 28, 1970, gage height, 8.11 ft (2.472 m); minimum, 3.4 ft³/s (0.096 m³/s) Dec. 30, 1963; minimum daily, 7.4 ft³/s (0.21 m³/s) Sept. 28, 29, Oct. 5, 15, 18, 19, 23, 24, 1969.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1936 reached a stage of about 12 ft (3.7 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 683 ft³/s (19.3 m³/s) Apr. 5, gage height, 7.61 ft (2.320 m); minimum, 12 ft³/s (0.34 m³/s) Sept. 25, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	32	23	52	31	41	50	40	29	40	20	15
2	19	29	23	47	30	39	46	46	29	36	16	15
3	16	28	21	45	30	38	47	46	36	27	16	22
4	15	27	21	45	32	39	371	47	38	26	15	16
5	15	26	20	45	33	37	575	45	40	26	15	15
6	16	25	23	44	30	40	367	44	53	26	15	15
7	33	26	55	44	29	38	206	44	31	25	14	16
8	39	23	41	41	29	37	161	41	35	22	15	18
9	129	23	35	43	28	36	119	41	27	22	14	16
10	54	22	32	40	32	35	106	40	26	20	13	26
11	39	22	30	42	28	35	67	40	25	21	16	18
12	36	26	44	41	38	37	91	36	26	21	24	15
13	32	22	41	40	45	36	86	30	26	19	21	14
14	29	21	37	43	40	52	73	30	27	19	17	16
15	27	21	37	50	43	64	76	56	26	18	16	16
16	26	21	36	47	38	43	73	30	26	18	16	23
17	27	20	33	43	35	41	60	30	27	18	18	26
18	25	19	32	42	36	41	63	31	25	18	16	18
19	23	19	30	40	37	39	66	30	25	18	16	19
20	92	18	30	40	39	49	62	30	26	17	19	16
21	21	19	37	36	35	42	58	29	29	17	17	15
22	24	18	36	34	36	45	57	28	30	18	16	16
23	19	18	33	37	30	47	50	26	37	18	15	13
24	20	18	31	37	52	40	57	28	38	18	15	13
25	64	18	31	37	40	30	47	26	36	20	15	13
26	70	18	33	35	42	38	47	29	30	28	16	16
27	44	19	31	35	44	37	50	28	29	25	16	15
28	37	20	32	36	43	37	46	29	27	26	15	14
29	35	33	32	33	---	36	55	27	26	26	15	13
30	33	26	30	32	---	43	48	28	28	26	15	12
31	36	---	72	31	---	43	---	28	---	26	15	---
TOTAL	1069	675	1048	1271	1025	1337	3328	1066	892	713	506	487
MEAN	34.5	22.5	33.8	41.0	36.6	43.1	111	34.3	29.7	23.0	16.3	16.2
MAX	129	33	72	52	52	82	575	68	53	40	24	26
MIN	16	18	20	31	28	35	46	27	26	17	13	12
CFSM	1.25	.81	1.22	1.48	1.32	1.56	4.01	1.24	1.07	.83	.59	.58
IN.	1.44	.91	1.41	1.71	1.38	1.80	4.47	1.43	1.20	.96	.68	.65

CAL YR 1976 TOTAL 11401 MEAN 31.2 MAX 129 MIN 16 CFSM 1.13 IN 15.31
WTR YR 1977 TOTAL 13415 MEAN 36.8 MAX 575 MIN 12 CFSM 1.33 IN 18.02

03488000 NORTH FORK HOLSTON RIVER NEAR SALTVILLE, VA

LOCATION.--Lat 36°53'48", long 81°44'47", Smyth County, Hydrologic Unit 06010101, on right bank 0.5 mi (0.8 km) upstream from Cedar Branch bridge, 1.5 mi (2.4 km) northeast of Saltville, 7.8 mi (12.6 km) downstream from Laurel Creek, and at mile 84.6 (136.1 km).

DRAINAGE AREA.--222 mi² (575 km²).

PERIOD OF RECORD.--June 1907 to December 1908 (published as "at Saltville"), October 1920 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 758: Drainage area. WSP 1113: 1944-47. WSP 1306: 1907(M), 1921-22(M), 1926-30(M), 1932-34(M), drainage area at site used 1907-8. WSP 1726: 1947, monthly and yearly runoff.

GAGE.--Water-stage recorder. Datum of gage is 1,705.55 ft (519.856 m) above mean sea level. June 11, 1907, to Nov. 12, 1908, nonrecording gage on highway bridge 2.1 mi (3.4 km) downstream at different datum. Nov. 2, 1920, to May 23, 1934, nonrecording gage on highway bridge 0.5 mi (0.8 km) downstream at datum 7.74 ft (2.359 m) lower.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--18 years, 300 ft³/s (8.496 m³/s), 18.35 in/yr (466 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,500 ft³/s (467 m³/s) Jan. 29, 1957, gage height, 13.20 ft (4.023 m), from rating curve extended above 13,000 ft³/s (370 m³/s) on basis of slope-area measurement of peak flow; minimum, 1.0 ft³/s (0.028 m³/s) Oct. 15, 16, 1947, gage height, 0.13 ft (0.040 m), flow retarded by mine cave-in; minimum daily, 2.0 ft³/s (0.057 m³/s) Oct. 15, 1947.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft³/s (85 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1500	8640	245	9.03	2.752	Feb. 24	2230	4680	133	6.18	1.884
Oct. 26	0630	5110	145	6.51	1.984	Apr. 5	0730	*14900	422	12.98	3.956

Minimum discharge, 41 ft³/s (1.16 m³/s) Sept. 1, gage height, 0.52 ft (0.158 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	761	387	280	350	96	719	282	222	97	357	59	47
2	671	347	278	310	96	521	265	218	98	768	56	47
3	465	319	248	290	100	423	510	207	79	401	56	266
4	276	293	210	280	130	417	7980	218	72	280	52	113
5	203	254	193	264	160	571	10900	227	65	208	52	77
6	181	224	183	270	150	468	3040	454	125	171	57	99
7	177	207	1360	282	123	419	1480	385	459	143	53	99
8	3170	195	1370	238	88	356	980	314	181	122	49	107
9	7470	178	780	248	98	314	654	258	157	107	49	125
10	3010	172	540	258	120	284	515	222	193	97	42	95
11	1050	166	438	189	165	266	432	198	136	92	93	75
12	823	177	478	185	274	257	369	175	112	108	92	64
13	432	162	606	180	499	1310	329	159	98	103	65	57
14	335	145	550	240	618	1090	304	147	145	85	62	54
15	271	144	477	334	666	681	280	136	190	76	67	52
16	230	177	426	397	540	901	258	125	127	69	62	52
17	221	179	363	297	397	396	237	116	106	65	63	248
18	216	179	308	250	333	352	220	108	117	62	122	244
19	181	183	267	220	302	331	211	117	106	60	108	190
20	167	183	272	200	299	353	266	105	96	58	69	111
21	167	178	345	190	257	361	214	97	117	98	57	87
22	175	172	279	190	243	369	195	91	102	199	52	73
23	159	159	278	190	363	365	187	88	272	93	49	65
24	160	145	289	180	2200	336	209	85	464	71	55	60
25	662	142	245	180	2590	366	199	86	545	66	58	57
26	3680	137	258	180	1290	276	180	89	486	66	60	55
27	1270	144	233	170	1250	248	172	86	381	63	50	56
28	738	198	224	160	1090	232	164	79	454	59	46	56
29	508	259	242	140	---	220	255	75	612	57	45	54
30	405	334	196	108	---	251	252	72	450	69	46	51
31	426	---	427	96	---	325	---	77	---	69	43	---
TOTAL	28400	6102	12605	7058	14580	13342	31387	5026	6638	4342	1826	2791
MEAN	916	203	407	228	521	430	1046	162	221	140	58.9	93.0
MAX	7470	387	1370	397	2590	1310	10900	454	612	768	122	266
MIN	159	137	183	96	88	220	164	72	65	57	43	42
CFSM	4.13	.91	1.83	1.03	2.35	1.94	4.71	.73	1.00	.63	.27	.42
IN.	4.76	1.02	2.11	1.18	2.44	2.24	5.26	.84	1.11	.73	.31	.47

CAL YR 1976 TOTAL 123669 MEAN 338 MAX 7470 MIN 35 CFSM 1.52 IN 20.72
WTR YR 1977 TOTAL 134103 MEAN 367 MAX 10900 MIN 42 CFSM 1.65 IN 22.47

03490000 NORTH FORK HOLSTON RIVER NEAR GATE CITY, VA

LOCATION.--Lat 36°36'31", long 82°34'05", Scott County, Hydrologic Unit 06010101, on left bank 75 ft (23 m) upstream from bridge on U.S. Highway 23, 1.6 mi (2.6 km) downstream from Big Moccasin Creek, 2.1 mi (3.4 km) southeast of Gate City, and at mile 8.8 (14.2 km).

DRAINAGE AREA.--672 mi^2 (1,740 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1931 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 783: 1932(M). WSP 823: Drainage area. WSP 1276: 1932-34.

GAGE.--Water-stage recorder. Datum of gage is 1,197.56 ft (365.016 m) above mean sea level.

REMARKS.--Records good. Prior to 1957, diurnal fluctuation at low flow caused by one or more mills above station. Tennessee Valley Authority gage-height radio transmitter at station, receiver and recorder at Jefferson City, TN.

AVERAGE DISCHARGE.--46 years, 897 ft^3/s (25.40 m^3/s), 18.13 in/yr (461 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,000 ft^3/s (1,160 m^3/s) Apr. 5, 1977, gage height, 19.79 ft (6.032 m), from rating curve extended above 31,000 ft^3/s (880 m^3/s) on basis of slope-area measurement of peak flow; minimum discharge, 36 ft^3/s (1.02 m^3/s) Sept. 16, 17, 1964; minimum gage height, 1.00 ft (0.305 m) Jan. 6, 1940.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 7,000 ft^3/s (200 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 10	0400	12900	365	10.44	3.182	Apr. 5	1445	*41000	1160	19.79	6.032
Oct. 26	2000	7130	202	7.73	2.356						

Minimum discharge, 114 ft^3/s (3.23 m^3/s) Sept. 4, gage height, 1.48 ft (0.451 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1070	970	800	1990	300	2190	1690	1090	271	946	185	124
2	1410	850	780	1440	310	1630	1340	918	236	1330	174	134
3	1150	771	736	1160	320	1310	1810	832	234	1430	159	127
4	780	713	642	1060	432	1220	13300	765	225	878	153	199
5	561	645	560	919	497	1430	36700	783	200	627	147	318
6	415	569	540	877	595	1510	17500	773	194	483	144	224
7	373	506	4000	892	400	1380	5530	936	317	393	139	183
8	1210	456	3900	860	300	1210	3500	979	599	336	144	209
9	8250	420	3000	802	250	1050	2570	823	440	295	181	232
10	10700	393	2070	995	280	937	2040	692	325	270	405	230
11	3180	418	1500	800	391	864	1700	610	330	260	353	260
12	1690	471	1310	650	800	851	1460	536	320	244	257	234
13	1170	470	1930	600	1300	3260	1310	460	263	224	184	191
14	893	417	1990	560	1500	3960	1190	421	238	233	172	182
15	722	389	1660	800	1600	2420	1090	390	226	222	198	185
16	601	399	1420	1350	1700	1750	986	365	283	196	223	189
17	528	435	1260	1050	1600	1380	902	[illegible]	302	177	272	239
18	500	432	1100	900	1160	1190	834	[illegible]	266	171	255	261
19	470	420	939	800	1030	1130	786	[illegible]	282	162	353	497
20	409	419	830	700	1030	1210	815	311	261	155	310	333
21	370	413	980	620	986	1400	891	297	294	153	241	254
22	361	397	1190	600	875	1390	767	275	308	152	192	205
23	353	374	1010	600	948	1470	728	264	379	228	168	174
24	332	346	921	600	1810	1290	835	256	537	246	260	152
25	815	326	849	580	5550	1140	823	245	953	235	204	141
26	5670	350	801	560	3520	1010	754	237	1220	226	194	140
27	4500	370	780	540	2710	905	684	242	1160	200	175	147
28	2030	450	719	520	2870	829	647	266	873	173	161	146
29	1320	700	737	500	---	780	1000	237	907	168	151	145
30	1030	1000	759	309	---	1450	1330	265	971	174	138	134
31	1010	---	1590	300	---	2550	---	265	---	188	130	---
TOTAL	53873	15289	41303	24934	35064	46096	105512	15518	13414	11175	6422	6189
MEAN	1738	510	1332	804	1252	1487	3517	501	447	360	207	206
MAX	10700	1000	4000	1990	5550	3960	36700	1090	1220	1430	405	497
MIN	332	326	540	300	250	780	647	237	194	152	130	124
CFSM	2.59	.76	1.98	1.20	1.86	2.21	5.23	.75	.67	.54	.31	.31
IN.	2.98	.85	2.29	1.38	1.94	2.55	5.84	.86	.74	.62	.36	.34

CAL YR 1976 TOTAL 345299 MEAN 943 MAX 10700 MIN 91 CFSM 1.40 IN 19.11
WTR YR 1977 TOTAL 374789 MEAN 1027 MAX 36700 MIN 124 CFSM 1.53 IN 20.75

03490000 NORTH FORK HOLSTON RIVER NEAR GATE CITY, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1950-51, 1968 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1949 to September 1951, October 1967 to current year.

INSTRUMENTATION.--Continuous ethyl alcohol-actuated thermograph.

REMARKS.--Temperature records furnished by Tennessee Valley Authority.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 31.5°C July 20, 1977; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 31.5°C July 20; minimum, 0.0°C on many days during January and February.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	17.0	15.5	---	---	3.0	1.5	3.0	0.5	0.5	0.0	6.0	4.0
2	15.5	14.5	9.0	7.0	3.0	1.5	0.5	0.0	0.5	0.0	5.5	3.5
3	15.5	14.5	8.5	7.0	2.0	1.0	0.5	0.0	0.5	0.0	6.0	4.5
4	17.0	14.5	8.5	6.5	2.0	0.5	1.5	0.5	0.5	0.0	8.5	6.0
5	19.0	16.0	6.5	5.0	3.0	1.0	2.0	1.0	0.5	0.5	9.5	7.0
6	18.5	16.5	6.5	5.0	3.0	1.5	3.0	1.5	0.5	0.5	9.5	8.5
7	18.5	18.0	6.5	5.0	5.0	3.0	3.0	1.0	0.5	0.0	9.5	8.0
8	18.0	17.0	5.5	4.0	5.0	5.0	1.5	0.0	0.5	0.0	9.5	7.0
9	17.0	15.0	5.0	4.0	5.0	3.5	1.0	0.0	0.5	0.5	10.0	8.0
10	15.0	13.0	6.0	4.5	3.5	3.0	0.5	0.0	0.5	0.5	10.0	8.5
11	---	---	6.0	4.5	4.5	3.5	0.0	0.0	1.0	0.5	12.0	9.5
12	---	---	6.0	5.0	6.5	4.5	0.0	0.0	0.5	0.5	13.0	11.0
13	---	---	5.0	4.0	6.5	6.0	0.0	0.0	1.0	0.5	13.0	11.0
14	---	---	4.0	3.5	6.0	5.0	0.0	0.0	1.5	0.5	12.0	10.0
15	---	---	5.0	4.0	5.5	4.5	0.5	0.0	1.5	0.5	13.0	10.5
16	---	---	6.0	5.0	6.0	5.5	0.5	0.0	1.0	0.5	13.5	11.5
17	---	---	6.0	5.0	6.0	5.0	0.0	0.0	1.5	0.5	12.0	11.0
18	---	---	6.5	5.0	5.5	4.5	0.0	0.0	1.5	0.5	13.5	11.0
19	---	---	7.0	5.5	6.0	5.0	0.0	0.0	3.0	0.5	12.0	11.0
20	---	---	7.0	6.0	6.0	5.0	0.0	0.0	2.0	1.5	13.0	10.5
21	---	---	6.0	5.0	5.0	3.0	1.0	0.0	3.0	1.5	11.0	10.0
22	---	---	5.0	4.0	3.0	1.0	0.5	0.5	5.0	1.0	10.5	8.0
23	---	---	4.0	3.5	1.5	0.5	0.5	0.5	6.0	3.5	9.5	7.0
24	---	---	4.0	3.0	1.0	0.5	0.5	0.5	7.0	5.5	10.5	8.0
25	---	---	4.0	2.0	0.5	0.5	1.0	0.5	6.5	5.5	11.0	8.5
26	---	---	4.5	3.5	1.0	0.5	1.0	0.5	7.0	5.5	12.0	9.5
27	---	---	6.0	4.5	1.5	0.5	1.0	0.5	8.0	7.0	13.0	11.0
28	---	---	7.0	6.0	3.0	0.5	1.5	0.5	7.0	6.0	14.0	11.5
29	---	---	6.5	5.0	2.0	1.0	1.0	1.0	---	---	15.5	13.0
30	---	---	5.0	3.0	1.5	0.5	1.0	1.0	---	---	15.5	14.5
31	---	---	---	---	3.0	1.5	1.0	0.5	---	---	15.5	14.0
MONTH	19.0	13.0	9.0	2.0	6.5	0.5	3.0	0.0	8.0	0.0	15.5	3.5

03490000 NORTH FORK HOLSTON RIVER NEAR GATE CITY, VA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	15.5	15.0	---	---	26.5	24.5	26.5	25.0	28.5	26.0	29.0	26.0
2	16.0	14.5	---	---	26.0	23.5	26.0	25.0	28.5	25.0	29.0	26.5
3	16.0	15.0	---	---	26.5	23.0	25.5	24.0	27.0	25.5	29.0	26.0
4	15.5	13.0	20.5	18.0	26.5	23.0	26.5	24.0	28.0	25.0	29.0	26.0
5	---	---	21.0	19.0	26.5	23.5	26.5	25.0	28.5	25.5	28.5	25.0
6	---	---	23.5	20.0	26.0	24.5	28.5	25.0	29.0	26.0	28.0	25.5
7	---	---	23.0	21.0	24.5	22.0	30.0	26.5	29.0	26.5	27.0	24.5
8	---	---	23.0	21.0	23.0	20.5	30.5	28.0	29.0	26.0	25.5	24.0
9	---	---	21.0	19.0	21.5	19.5	30.5	28.5	28.5	25.5	25.5	23.5
10	---	---	20.0	17.0	23.0	18.5	30.0	28.5	28.0	26.0	25.5	24.0
11	---	---	20.0	16.0	21.5	20.0	30.0	27.0	26.5	25.0	24.5	22.0
12	---	---	20.5	16.5	25.0	20.5	29.5	27.0	28.0	25.0	23.5	21.0
13	---	---	21.0	18.0	26.5	23.0	30.5	27.0	27.0	25.5	23.0	21.0
14	---	---	22.0	19.0	26.0	25.0	30.5	28.5	26.5	25.0	23.5	22.0
15	---	---	23.5	20.0	26.0	24.0	31.0	28.0	26.5	24.5	24.0	22.0
16	---	---	24.0	20.5	28.0	24.5	30.5	27.0	27.0	25.5	24.0	23.0
17	---	---	25.0	21.5	26.5	25.0	30.5	28.0	26.5	24.5	24.0	23.5
18	---	---	24.5	22.0	26.0	24.5	31.0	28.5	26.0	23.5	24.5	23.0
19	---	---	25.0	22.0	27.0	24.5	31.0	28.5	26.0	23.5	24.5	24.0
20	---	---	25.5	23.0	27.0	25.0	31.5	29.0	26.0	23.5	24.5	23.5
21	---	---	26.0	23.0	28.0	25.0	31.0	29.0	25.5	23.5	24.0	22.0
22	---	---	25.0	23.0	26.0	24.0	29.5	27.0	26.0	24.0	23.5	21.0
23	---	---	25.0	23.0	26.0	24.0	29.5	26.0	26.5	24.5	23.0	20.5
24	---	---	25.0	22.0	25.0	24.5	28.5	26.5	26.0	24.0	22.0	21.0
25	---	---	25.0	23.0	25.0	24.0	27.0	25.5	26.0	23.5	23.0	21.0
26	---	---	26.0	23.0	25.0	23.5	28.0	25.0	26.5	24.0	22.0	21.0
27	---	---	26.5	23.0	25.0	23.5	27.0	24.5	27.0	24.5	21.0	20.5
28	---	---	27.0	24.0	25.5	24.0	26.5	25.0	28.0	25.5	20.5	19.0
29	---	---	27.0	24.5	26.5	24.5	26.0	24.5	28.5	25.5	19.0	18.0
30	---	---	28.0	25.0	27.0	25.0	27.0	24.5	28.5	26.0	19.5	17.0
31	---	---	28.0	25.0	---	---	28.5	25.5	29.5	26.0	---	---
MONTH	16.0	13.0	28.0	16.0	28.0	18.5	31.5	24.0	29.5	23.5	29.0	17.0

03521500 CLINCH RIVER AT RICHLANDS, VA

LOCATION.--Lat 37°05'10", long 81°46'52", Tazewell County, Hydrologic Unit 06010205, on right bank 1.0 mi (1.6 km) southeast of Richlands, 1.6 mi (2.6 km) downstream from Middle Creek, 2.2 mi (3.5 km) upstream from Big Creek, and at mile 321.0 (516.5 km).

DRAINAGE AREA.--139 mi² (360 km²).

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 1306: 1946(M), 1948-50(M).

GAGE.--Water-stage recorder. Datum of gage is 1,924.08 ft (586.460 m) above mean sea level. Prior to Aug. 6, 1950, nonrecording gage at bridge 1.1 mi (1.8 km) downstream at datum 6.53 ft (1.990 m) lower.

REMARKS.--Records good. Prior to October 1970, diurnal fluctuation at low flow caused by mill 1.7 mi (2.7 km) above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--32 years, 191 ft³/s (5.409 m³/s), 18.66 in/yr (474 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,640 ft³/s (273 m³/s) Jan. 29, 1957, gage height, 19.3 ft (5.88 m), from floodmark, from rating curve extended above 4,900 ft³/s (140 m³/s) on basis of contracted-opening measurement of peak flow; minimum, 3.2 ft³/s (0.091 m³/s) Sept. 8, 1955; minimum daily, 8.8 ft³/s (0.25 m³/s) July 6, Sept. 10, 16, 1964; minimum gage height, 0.45 ft (0.137 m) July 2, 3, 1951.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 22, 1901, reached a stage of 21.3 ft (6.49 m), present site and datum, from floodmark, discharge, 11,500 ft³/s (326 m³/s), from report by Tennessee Valley Authority. Flood of Feb. 18, 1944, reached a stage of 13.7 ft (4.18 m), present site and datum, from floodmark, discharge, 5,500 ft³/s (156 m³/s), from report by Tennessee Valley Authority.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,600 ft³/s (45 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1130	4140	117	10.89	3.319
Oct. 26	0600	1740	49.3	6.18	1.884
Feb. 24	1930	2180	61.7	7.07	2.155
Apr. 5	0200	*7340	208	16.06	4.895

Minimum discharge, 30 ft³/s (0.85 m³/s) Sept. 30, gage height, 0.83 ft (0.253 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	559	177	133	220	50	361	122	113	56	183	42	40
2	426	150	126	200	52	282	115	116	52	163	40	40
3	216	138	113	170	54	239	241	113	47	118	101	42
4	141	131	102	160	70	235	4230	151	44	93	78	43
5	103	118	95	162	90	265	5250	249	42	69	56	39
6	83	107	94	177	110	233	1690	410	179	67	49	37
7	86	100	713	193	70	212	874	250	261	64	57	38
8	916	94	744	172	52	187	603	193	98	62	54	54
9	3030	86	448	170	45	168	439	151	110	55	51	54
10	1350	86	321	179	66	153	343	127	107	61	52	43
11	543	83	272	170	100	142	281	112	76	81	54	38
12	326	88	336	140	200	137	240	101	67	62	87	36
13	229	84	490	190	300	516	214	93	60	56	122	34
14	178	77	398	342	550	457	195	87	87	54	161	33
15	142	79	321	419	381	328	177	83	111	51	164	35
16	121	90	272	314	270	265	161	78	77	48	107	36
17	123	87	223	208	208	221	147	74	112	46	226	59
18	117	86	186	170	179	221	139	70	143	45	412	89
19	95	84	160	150	177	207	130	67	98	43	164	59
20	88	83	169	130	214	218	158	64	87	42	107	49
21	87	81	200	120	181	205	134	60	80	47	83	41
22	79	82	162	110	185	233	119	57	68	73	71	37
23	73	76	155	105	348	231	116	55	397	55	64	34
24	74	71	147	100	1400	213	129	54	380	45	68	34
25	500	71	136	98	1220	191	123	57	658	46	69	32
26	1330	71	145	96	678	172	113	61	450	50	57	34
27	583	75	136	90	582	155	107	55	292	50	52	35
28	353	80	132	80	499	144	102	52	290	42	46	34
29	257	130	152	70	---	136	141	51	348	40	44	33
30	211	149	139	56	---	139	126	52	234	47	43	31
31	210	---	244	52	---	142	---	57	---	51	42	---
TOTAL	12629	2914	7464	5013	8331	7008	16959	3313	5111	2009	2823	1243
MEAN	407	97.1	241	162	298	226	565	107	170	64.8	91.1	41.4
MAX	3030	177	744	419	1400	516	5250	410	658	183	412	89
MIN	73	71	94	52	45	136	102	51	42	40	40	31
CFSM	2.93	.70	1.73	1.17	2.14	1.63	4.07	.77	1.22	.47	.66	.30
IN.	3.38	.78	2.00	1.34	2.23	1.88	4.54	.89	1.37	.54	.76	.33

CAL YR 1976 TOTAL 62971 MEAN 172 MAX 3030 MIN 18 CFSM 1.24 IN 16.85
WTR YR 1977 TOTAL 74817 MEAN 205 MAX 5250 MIN 31 CFSM 1.48 IN 20.02

03524000 CLINCH RIVER AT CLEVELAND, VA

LOCATION.--Lat 36°56'41", long 82°09'18", Russell County, Hydrologic Unit 06010205, on right bank 500 ft (152 m) upstream from highway bridge at Cleveland, 0.5 mi (0.8 km) downstream from Muddy Hollow, 2.3 mi (3.7 km) downstream from Weaver Creek, 4.4 mi (7.1 km) downstream from Thompson Creek, and at mile 271.6 (437.0 km).

DRAINAGE AREA.--528 mi^2 (1,368 km^2).

PERIOD OF RECORD.--October 1920 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1306: 1921-23(M), 1926(M), 1929-31(M). WSP 1706: 1927(M).

GAGE.--Water-stage recorder. Datum of gage is 1,500.24 ft (457.273 m) above mean sea level. Prior to Nov. 1, 1931, nonrecording gage on highway bridge 500 ft (152 m) downstream at datum 1.0 ft (0.30 m) lower.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--57 years, 708 ft^3/s (20.05 m^3/s), 18.21 in/yr (463 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,500 ft^3/s (977 m^3/s) Apr. 5, 1977, gage height, 26.40 ft (8.047 m), from rating curve extended above 26,000 ft^3/s (740 m^3/s) on basis of contracted-opening measurement at gage height 24.40 ft (7.437 m); minimum, 35 ft^3/s (0.99 m^3/s) Sept. 28, 1964; minimum gage height, 0.96 ft (0.293 m) Feb. 10, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,000 ft^3/s (140 m^3/s) and maximum (*):

Date	Time	Discharge		Gage height		Date	Time	Discharge		Gage height	
		(ft^3/s)	(m^3/s)	(ft)	(m)			(ft^3/s)	(m^3/s)	(ft)	(m)
Oct. 9	2330	9520	270	13.27	4.045	Apr. 5	0545	*34500	977	26.40	8.047

Minimum discharge, 97 ft^3/s (2.75 m^3/s) Sept. 30, gage height, 1.50 ft (0.457 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2040	723	471	932	190	1370	530	467	234	655	134	118
2	1850	616	456	785	190	1040	483	425	195	824	124	124
3	1000	549	419	720	200	851	825	405	170	600	122	110
4	641	514	374	666	250	802	12300	449	150	429	146	148
5	470	473	343	620	330	938	27800	530	141	344	170	158
6	361	428	323	648	400	865	8450	948	150	300	138	158
7	384	389	1680	695	250	776	3520	890	955	270	122	187
8	1950	361	2860	658	196	688	2390	695	530	240	150	180
9	7080	334	1850	636	170	613	1820	550	327	216	160	205
10	6570	314	1300	897	250	566	1470	449	369	240	143	195
11	2300	307	1060	700	450	531	1220	389	306	449	148	150
12	1340	320	1260	600	834	507	1030	351	240	297	155	126
13	916	310	1800	500	1670	1560	890	321	207	213	219	114
14	708	284	1640	613	2100	2080	794	300	202	187	297	110
15	578	272	1310	1090	1080	1400	715	282	246	178	401	106
16	491	293	1090	1370	930	1080	650	267	270	155	337	114
17	460	311	892	977	684	859	590	252	219	143	261	128
18	442	301	746	750	585	768	545	240	237	136	670	225
19	388	291	639	620	557	758	510	231	315	134	615	249
20	343	284	608	550	704	746	510	219	297	128	330	195
21	327	276	737	500	625	762	495	210	264	143	248	155
22	299	271	620	450	545	797	433	200	261	155	192	130
23	273	264	600	390	746	877	409	192	389	228	167	118
24	260	251	568	370	2370	785	481	185	1220	165	200	108
25	855	241	526	360	4030	710	476	187	1190	146	255	105
26	4120	240	540	350	2310	638	421	187	1380	148	197	105
27	2540	242	527	350	1900	582	389	195	983	141	162	105
28	1470	251	497	330	1790	544	361	180	824	134	141	110
29	1030	401	547	280	---	520	600	167	1030	126	136	105
30	815	519	510	210	---	529	570	160	927	136	124	99
31	763	---	836	200	---	587	---	255	---	146	118	---
TOTAL	43064	10630	27629	18817	26330	26129	71677	10778	14228	7798	6774	4240
MEAN	1389	354	891	607	940	843	2389	348	474	252	219	141
MAX	7080	723	2860	1370	4030	2080	27800	948	1380	824	670	249
MIN	260	240	323	200	170	507	361	160	141	126	118	99
CFSM	2.63	.67	1.69	1.15	1.78	1.60	4.53	.66	.90	.48	.42	.27
IN.	3.03	.75	1.95	1.33	1.86	1.84	5.05	.76	1.00	.55	.48	.30

CAL YR 1976 TOTAL 233515 MEAN 638 MAX 7080 MIN 63 CFSM 1.21 IN 16.45
WTR YR 1977 TOTAL 268094 MEAN 735 MAX 27800 MIN 99 CFSM 1.39 IN 18.89

03528000 CLINCH RIVER ABOVE TAZEWELL, TN

LOCATION.--Lat 36°25'30", long 83°23'54", Claiborne County, Hydrologic Unit 06010205, on right bank 0.4 mi (0.6 km) upstream from Grissom Island, 4.6 mi (7.4 km) downstream from Big War Creek, 10 mi (16 km) east of Tazewell, and at mile 159.8 (257.1 km).

DRAINAGE AREA.--1,474 mi^2 (3,818 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1918 to current year. Prior to April 1919 monthly discharge only, published in WSP 1306. Published as "near Lone Mountain" October 1918 to September 1927, as "near Tazewell" August 1927 to December 1936, and as "above Tazewell" July 1935 to current year. Gage-height record "near Tazewell" January 1937 to July 1941.

REVISED RECORDS.--WSP 803: Drainage area at site "near Tazewell". WSP 1306: Drainage area at site "near Lone Mountain." WSP 1336: 1928.

GAGE.--Water-stage recorder. Datum of gage is 1,060.7 ft (323.30 m) above mean sea level. Apr. 1, 1919, to Sept. 30, 1927, nonrecording gage on railroad bridge 23.3 mi (37.5 km) downstream at datum 102.7 ft (31.30 m) lower. Aug. 8, 1927, to July 16, 1941, water-stage recorder at site 8.0 mi (12.9 km) downstream at datum 47.2 ft (14.39 m) lower. Water-stage recorder at present site and datum since July 29, 1935.

REMARKS.--Records good.

AVERAGE DISCHARGE.--59 years, 2,093 ft^3/s (59.27 m^3/s), 19.28 in/yr (490 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 98,100 ft^3/s (2,780 m^3/s) Apr. 5, 1977, gage height, 29.32 ft (8.937 m), from floodmarks; minimum, 108 ft^3/s (3.06 m^3/s) Sept. 11, 1925; minimum gage height at present site and datum, 0.33 ft (0.101 m) Sept. 20, 1955.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in February 1862 reached a stage of about 24 ft (7.3 m), present site and datum, from information by local resident, discharge, about 66,000 ft^3/s (1,870 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 98,100 ft^3/s (2,780 m^3/s) at about 1800 hours Apr. 5, gage height, 29.32 ft (8.937 m), from floodmarks, no other peak above base of 14,000 ft^3/s (400 m^3/s); minimum, 289 ft^3/s (8.18 m^3/s) Sept. 4, 5, gage height, 0.85 ft (0.259 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2220	1970	1910	2350	851	4130	3820	2340	546	1470	401	329
2	2620	1820	1590	2370	811	3300	2870	1940	559	1320	379	315
3	2590	1600	1350	2070	746	2640	4160	1640	580	1140	362	314
4	1790	1380	1190	1900	723	2480	19800	1460	487	1170	340	298
5	1180	1220	1040	1770	794	3120	83300	1350	439	916	322	294
6	885	1090	943	1610	756	3290	65200	1370	408	752	308	301
7	758	979	2080	1590	769	2920	26100	1440	419	650	321	325
8	1230	853	5160	1580	729	2490	9680	1780	491	578	373	391
9	4260	811	6090	1540	729	2140	6280	1490	1110	528	397	413
10	10300	758	4190	1680	675	1900	4770	1270	832	496	370	438
11	10400	724	3010	1840	688	1720	3880	1090	648	1230	482	411
12	4450	726	3100	1660	812	1660	3290	972	655	979	490	392
13	2460	731	4190	1530	1130	6390	2870	890	614	959	412	366
14	1760	714	4250	1590	1720	8630	2580	827	537	751	386	338
15	1360	690	3750	1660	2400	6050	2350	779	523	580	676	370
16	1120	675	3080	2510	2510	4130	2140	736	592	481	1100	344
17	960	666	2570	2420	2190	3130	1930	698	525	422	1560	474
18	844	674	2160	2830	1780	2540	1650	660	620	384	1720	485
19	776	681	1840	2610	1540	2300	1520	634	595	359	1190	468
20	728	668	1740	2820	1460	2250	1420	617	591	333	1200	438
21	888	645	2210	2750	1590	2290	1350	584	630	323	999	494
22	630	624	2190	1490	1550	2340	1280	560	736	323	716	456
23	597	607	1990	1360	1420	2700	1260	578	899	357	581	391
24	573	590	1750	1250	1880	2730	1440	562	1040	403	556	344
25	1970	569	1590	1190	5080	2460	1980	560	2610	592	566	314
26	8270	558	1450	1140	7210	2170	1790	538	2170	4250	525	309
27	7250	550	1440	1080	5310	1930	1520	524	2420	1090	550	336
28	5020	727	1390	1030	4750	1750	1340	514	1950	623	511	368
29	2920	1900	1380	727	---	1630	1720	532	1470	495	435	340
30	2140	2230	1320	815	---	2720	2510	492	1320	441	377	317
31	1970	---	1620	869	---	5270	---	489	---	419	342	---
TOTAL	82719	28458	73543	54631	52603	95250	265800	29916	27016	24814	18947	11173
MEAN	2668	949	2372	1752	1879	3073	8860	965	901	800	611	372
MAX	10400	2230	6090	2830	7210	8630	83300	2340	2610	4250	1720	494
MIN	573	550	943	727	675	1630	1260	489	408	323	308	294
CFSM	1.81	.64	1.61	1.20	1.28	2.09	6.01	.66	.61	.54	.42	.25
IN.	2.09	.72	1.86	1.38	1.33	2.40	6.71	.76	.68	.63	.48	.28

CAL YR 1976 TOTAL 645957 MEAN 1765 MAX 16200 MIN 170 CFSM 1.20 IN 16.30
WTR YR 1977 TOTAL 764870 MEAN 2096 MAX 83300 MIN 294 CFSM 1.42 IN 19.30

03528000 CLINCH RIVER ABOVE TAZEWELL, TN--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1963-65, 1971 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1962 to September 1965, April 1971 to September 1975.

COOPERATION.--Samples collected and analyzed by Tennessee Valley Authority.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 30.0°C July 22, 23, 24, 1972, Aug. 29, 30, 31, 1973; minimum, 1.0°C Jan. 13, 14, 1973.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	SAMPLING DEPTH (FT)	CROSS SECTION LOCATION (% FROM R BANK)	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	CHEMICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)
OCT											
12...	1450	1.0	99	3780	220	7.6	14.0	13	65	9.8	14
13...	1615	1.0	99	--	--	--	--	--	--	--	--
20...	1530	--	--	755	300	--	12.0	--	--	--	--
NOV											
10...	1040	1.0	99	758	280	7.2	6.2	5	1	13.5	5
DEC											
08...	1100	1.0	99	5230	240	7.3	4.5	8	34	11.8	5
14...	1300	--	--	4390	250	--	6.5	--	--	--	--
FEB											
08...	1230	--	--	653	300	--	1.0	--	--	--	--
15...	1015	1.0	99	2350	310	7.3	1.9	8	8	14.6	5
MAR											
09...	1100	--	--	2210	230	--	9.0	--	--	--	--
MAY											
18...	1445	1.0	99	639	270	7.6	25.0	7	1	9.2	5
JUN											
22...	1245	--	--	696	300	--	26.0	--	--	--	--
AUG											
10...	1255	1.0	90	371	--	8.1	27.5	10	11	7.9	5

DATE	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM (COL. PER 100 ML)	TOTAL CALCIUM (CA) (MG/L)	TOTAL MAGNESIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
OCT											
12...	--	--	--	36	3.9	3.6	1.4	111	91	21	4.0
13...	1.1	--	850	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
NOV											
10...	--	--	--	36	16	3.7	1.1	146	120	32	5.0
DEC											
08...	--	--	--	34	7.8	3.4	1.2	146	120	21	6.0
14...	--	--	--	--	--	--	--	--	--	--	--
FEB											
08...	--	--	--	--	--	--	--	--	--	--	--
15...	1.3	660	<10	36	9.4	5.2	1.6	159	130	17	5.0
MAR											
09...	--	--	--	--	--	--	--	--	--	--	--
MAY											
18...	1.4	6200	100	39	9.9	4.3	1.4	159	130	23	3.0
JUN											
22...	--	--	--	--	--	--	--	--	--	--	--
AUG											
10...	1.4	2200	300	40	15	5.8	2.5	134	110	28	6.0

03528000 CLINCH RIVER ABOVE TAZEWELL, TN--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	TOTAL NON-FILT-RABLE RESIDUE (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL ORGANIC NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)
OCT											
12...	<.1	6.5	130	.18	1330	72	1.2	.02	.18	.07	.03
13...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
NOV											
10...	<.1	3.7	170	.23	348	6	.04	.03	.26	.02	.11
DEC											
08...	<.1	3.0	140	.19	1900	50	.51	.01	.17	.06	.06
14...	--	--	--	--	--	--	--	--	--	--	--
FEB											
08...	--	--	--	--	--	--	--	--	--	--	--
15...	<.1	1.0	160	.22	1020	5	.79	.03	.12	.02	--
MAR											
09...	--	--	--	--	--	--	--	--	--	--	--
MAY											
10...	<.1	--	150	.20	259	43	.13	.02	.13	.01	--
JUN											
22...	--	--	--	--	--	--	--	--	--	--	--
AUG											
10...	<.1	--	180	.24	180	17	.27	.08	.19	.23	--

DATE	TOTAL ALUM-INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL BARIUM (BA) (UG/L)	TOTAL BERYL-LIUM (BE) (UG/L)	TOTAL BORON (B) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)
OCT											
12...	--	--	--	--	--	--	--	--	3000	70	--
13...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
NOV											
10...	700	<2	<100	<10	30	<1	<5	70	150	<50	<10
DEC											
08...	--	--	--	--	--	--	--	--	710	100	--
14...	--	--	--	--	--	--	--	--	--	--	--
FEB											
08...	--	--	--	--	--	--	--	--	--	--	--
15...	400	--	<100	<10	80	<1	--	60	420	--	<10
MAR											
09...	--	--	--	--	--	--	--	--	--	--	--
MAY											
10...	300	--	<100	<10	--	<1	--	60	420	<50	<10
JUN											
22...	--	--	--	--	--	--	--	--	--	--	--
AUG											
10...	<200	--	<100	<10	--	<1	--	70	2200	<50	<10

DATE	TOTAL LITHIUM (LI) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL TI-TANIUM (TI) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
OCT										
12...	--	160	10	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
NOV										
10...	20	<10	<10	<.2	<50	<1	<10	<1000	50	1.2
DEC										
08...	--	60	<10	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
FEB										
08...	--	--	--	--	--	--	--	--	--	--
15...	40	70	--	<.2	<50	<1	<10	<1000	<10	1.9
MAR										
09...	--	--	--	--	--	--	--	--	--	--
MAY										
10...	<10	20	<10	<.2	<50	--	<10	<1000	50	1.6
JUN										
22...	--	--	--	--	--	--	--	--	--	--
AUG										
10...	<10	40	<10	<.2	<50	--	<10	<1000	30	3.9

03530510 NORTH FORK POWELL RIVER AT U.S. HIGHWAY 58 ALT., AT PENNINGTON GAP, VA

LOCATION.--Lat 36°45'40", long 83°00'51", Lee County, at bridge on U.S. Highway Alt. 58, near east town limit of Pennington Gap, 3.6 mi (5.8 km) downstream from Straight Creek, and at mile 2.3 (3.7 km).

DRAINAGE AREA.--80 mi² (207 km²).

PERIOD OF RECORD.--Water years 1973 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)
OCT											
13...	1300	260	95	64	23	9.1	9.8	2.1	38	80	3.2
DEC											
02...	0745	145	55	37	13	5.5	5.4	1.3	22	48	2.0
JAN											
06...	1330	170	58	40	14	5.7	8.0	1.4	23	52	4.1
FEB											
17...	0815	143	51	32	12	5.2	5.4	1.4	24	42	2.4
APR											
06...	1245	202	66	50	16	6.3	11	1.9	20	66	2.5
MAY											
12...	0750	222	85	62	22	7.4	9.5	1.6	29	69	2.7
JUL											
08...	0830	347	130	88	35	10	18	2.4	50	110	3.9
AUG											
25...	0800	--	100	67	26	8.5	11	2.4	40	74	3.3

DATE	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)
OCT											
13...	.1	6.5	160	154	.33	1.5	.00	.33	.00	.00	10
DEC											
02...	.0	5.9	93	93	.10	.44	.12	.22	.00	.00	20
JAN											
06...	.0	4.9	96	102	.21	.93	.00	.21	.00	.00	10
FEB											
17...	.0	5.7	93	87	.30	1.3	.00	.30	.00	.00	10
APR											
06...	.1	5.6	146	122	.56	2.5	.01	.57	.01	.03	10
MAY											
12...	.1	5.2	130	132	.15	.66	.00	.15	.00	.00	1
JUL											
08...	.1	4.7	224	209	.01	.04	.00	.01	.00	.00	10
AUG											
25...	.1	5.9	155	152	.27	1.2	.00	.27	.00	.00	120

03531500 POWELL RIVER NEAR JONESVILLE, VA

LOCATION.--Lat 36°39'43", long 83°05'42", Lee County, Hydrologic Unit 06010206, on right bank 175 ft (53 m) downstream from highway bridge, 2 mi (3 km) southeast of Jonesville, 10 mi (16 km) upstream from Wallen Creek, and at mile 143.1 (230.2 km).

DRAINAGE AREA.--319 mi² (826 km²).

PERIOD OF RECORD.--October 1931 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1033: 1932-44. WSP 1436: 1946(M), 1948(M).

GAGE.--Water-stage recorder. Datum of gage is 1,259.08 ft (383.768 m) above mean sea level.

REMARKS.--Records good except those for period of no gage-height record, Apr. 4-8, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--46 years, 540 ft³/s (15.29 m³/s), 22.99 in/yr (584 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 57,000 ft³/s (1,610 m³/s) Apr. 5, 1977, gage height, 44.32 ft (13.509 m), from floodmark, from rating curve extended above 20,000 ft³/s (570 m³/s) on basis of slope-area measurement of peak flow; minimum, 17 ft³/s (0.48 m³/s) Sept. 19, 20, 1954, and as result of storage behind temporary dam Oct. 18, 1961; minimum gage height, 0.68 ft (0.207 m) Oct. 18, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 57,000 ft³/s (1,610 m³/s), time unknown, Apr. 5, gage height, 44.32 ft, from floodmark, no other peak above base of 5,000 ft³/s (140 m³/s); minimum, 68 ft³/s (1.93 m³/s) July 21, gage height, 1.42 ft (0.433 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	447	514	378	339	100	1150	613	600	154	193	89	120
2	274	422	317	281	100	831	563	477	125	244	80	148
3	177	358	271	270	110	680	860	399	109	229	84	178
4	123	313	227	250	164	760	6000	351	98	169	80	172
5	96	267	203	277	199	1280	35000	317	91	135	80	130
6	82	227	183	293	183	1050	15000	427	89	120	91	116
7	80	200	1150	288	140	835	4500	355	226	111	91	118
8	389	177	1840	256	100	664	2000	335	190	100	87	125
9	2280	162	1070	259	85	554	1370	286	127	94	217	142
10	1660	153	682	395	95	487	1070	250	132	93	265	113
11	625	147	532	414	186	439	849	229	118	166	226	98
12	362	150	840	300	214	420	683	214	122	132	137	91
13	257	144	1260	230	442	2660	580	193	109	113	175	87
14	203	126	1040	319	557	2130	513	181	244	105	858	91
15	168	121	787	623	583	1340	459	175	259	91	1010	100
16	144	121	635	711	537	977	411	166	154	82	518	125
17	132	118	495	513	431	738	367	157	122	78	1660	555
18	123	110	406	350	396	642	339	148	132	74	1110	347
19	108	108	347	300	380	569	314	142	116	72	570	247
20	100	103	351	250	431	592	289	137	113	71	371	202
21	103	100	482	230	378	594	265	130	137	69	268	160
22	100	96	366	210	340	692	247	125	118	107	211	132
23	89	93	340	200	390	861	265	120	296	148	175	118
24	87	89	310	200	1240	760	509	127	595	100	184	107
25	1130	87	288	190	2180	647	464	145	716	137	265	108
26	2250	87	302	190	1410	555	379	142	689	351	178	100
27	1060	93	284	190	1430	485	324	127	509	199	137	122
28	575	129	264	180	1590	441	289	120	359	116	120	166
29	393	491	277	170	---	419	852	127	282	96	109	132
30	321	542	227	110	---	465	876	125	223	116	105	109
31	473	---	354	105	---	682	---	120	---	111	137	---
TOTAL	14411	5848	16508	8893	14371	25399	76250	6947	6754	4022	9688	4551
MEAN	465	195	533	287	513	819	2542	224	225	130	313	152
MAX	2280	542	1840	711	2180	2660	35000	600	716	351	1660	555
MIN	80	87	183	105	85	419	247	120	89	69	80	87
CFSM	1.46	.61	1.67	.90	1.61	2.57	7.97	.70	.71	.41	.98	.48
IN.	1.68	.68	1.93	1.04	1.68	2.96	8.89	.81	.79	.47	1.13	.53

CAL YR 1976 TOTAL 164137 MEAN 448 MAX 8490 MIN 35 CFSM 1.40 IN 19.16
WTR YR 1977 TOTAL 193642 MEAN 531 MAX 35000 MIN 69 CFSM 1.67 IN 22.58

03532000 POWELL RIVER NEAR ARTHUR, TN

LOCATION.--Lat 36°32'30", long 83°37'49", Claiborne County, Hydrologic Unit 06010206, on left bank 500 ft (150 m) upstream from bridge on U.S. Highway 25E, 2.3 mi (3.7 km) east of Arthur, 2.4 mi (3.9 km) downstream from Indian Creek, and at mile 65.4 (105.2 km).

DRAINAGE AREA.--685 mi² (1,774 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1919 to current year. Gage-height records collected at same site December 1892 to August 1893, September 1904 to March 1925 are in reports of the National Weather Service (published as "near Tazewell").

REVISED RECORDS.--WSP 1336: 1920, 1921(M), 1923.

GAGE.--Water-stage recorder. Datum of gage is 1,043.84 ft (318.162 m) above mean sea level, Tennessee River Survey datum. Prior to July 23, 1927, nonrecording gage, and July 23, 1927, to Sept. 30, 1970, water-stage recorder, at same site at datum 2.00 ft (0.610 m) higher.

REMARKS.--Records good.

AVERAGE DISCHARGE.--58 years, 1,147 ft³/s (32.48 m³/s), 22.74 in/yr (578 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 59,500 ft³/s (1,690 m³/s) Apr. 6, 1977, gage height, 38.96 ft (11.875 m), from floodmark; minimum, 47 ft³/s (1.33 m³/s) Jan. 6, 1940, result of freezeup; minimum daily, 60 ft³/s (1.70 m³/s) Sept. 23, 1955; minimum gage height, 1.32 ft (0.402 m) Sept. 6, 1975, result of dredging.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1826 reached a stage of 29.5 ft (8.99 m), present datum, discharge, 34,000 ft³/s (963 m³/s), and flood of Jan. 29, 1918, reached a stage of 29.2 ft (8.90 m), present datum, discharge, 33,000 ft³/s (935 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 59,500 ft³/s (1,690 m³/s) at about 0400 hours Apr. 6, gage height, 38.96 ft (11.875 m), from floodmark, no other peak above base of 9,000 ft³/s (260 m³/s); minimum daily, 206 ft³/s (5.83 m³/s) Oct. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1470	976	990	751	415	2160	1890	1470	293	515	221	221
2	869	966	769	678	396	1670	1550	1170	266	452	218	249
3	503	826	640	670	407	1350	2130	990	283	407	218	227
4	385	719	573	701	385	1330	13400	869	249	422	215	249
5	243	636	499	692	430	1680	38900	774	233	363	215	276
6	233	560	456	688	441	1900	50300	705	230	309	215	266
7	218	495	1160	710	385	1640	15800	769	227	276	215	227
8	224	441	2160	701	327	1340	5270	760	227	249	215	227
9	719	400	2500	679	342	1180	3500	719	349	233	221	227
10	2790	374	1660	705	363	1040	2600	611	286	227	224	221
11	2030	353	1220	883	392	935	2090	539	236	227	356	227
12	1010	353	1190	999	464	886	1750	491	243	230	389	218
13	679	339	1640	826	755	2230	1490	456	240	293	316	215
14	511	329	1810	779	985	4170	1320	422	240	249	356	215
15	415	319	1650	865	1100	3160	1190	396	230	227	1050	215
16	353	303	1370	1230	1050	2120	1080	378	392	224	1430	215
17	318	298	1160	1350	961	1630	976	356	339	221	1030	218
18	283	290	985	1080	824	1360	892	339	319	221	2420	456
19	256	280	850	845	740	1220	836	329	276	221	1790	602
20	243	266	769	887	724	1160	788	316	356	218	1070	407
21	230	259	901	874	751	1150	714	303	283	218	751	339
22	212	246	996	765	710	1190	857	349	286	218	564	290
23	206	236	901	688	653	1300	653	370	468	218	449	246
24	212	227	793	649	878	1390	860	303	636	224	381	221
25	765	224	765	606	1790	1270	1050	293	2330	263	367	218
26	3400	218	705	590	2560	1140	957	298	1510	548	385	218
27	3150	227	683	556	1900	1020	807	299	1280	793	389	227
28	1650	243	683	527	2160	937	710	290	1050	479	306	236
29	1080	560	670	483	---	878	976	280	783	322	263	249
30	826	905	666	342	---	1030	1590	280	686	249	233	266
31	674	---	692	353	---	2210	---	280	---	224	221	---
TOTAL	26485	12866	32550	23352	23360	47726	156726	16202	14746	9560	16693	7888
MEAN	854	429	1050	753	834	1540	5224	523	492	308	538	263
MAX	3400	976	2500	1350	2560	4170	50300	1470	2330	793	2420	602
MIN	206	218	456	342	327	878	653	280	227	218	215	215
CFSM	1.25	.63	1.53	1.10	1.22	2.25	7.63	.76	.72	.45	.79	.38
IN.	1.44	.70	1.77	1.27	1.27	2.59	8.51	.88	.80	.52	.91	.43

CAL YR 1976 TOTAL 321218 MEAN 878 MAX 12500 MIN 82 CFSM 1.28 IN 17.44
WTR YR 1977 TOTAL 388154 MEAN 1063 MAX 50300 MIN 206 CFSM 1.55 IN 21.08

03532000 POWELL RIVER NEAR ARTHUR, TN--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1963-65, 1971 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1962 to September 1965, April 1971 to September 1975.

COOPERATION.--Samples collected and analyzed by Tennessee Valley Authority.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 29.0°C July 20, 22, 23, 24, 1972; minimum, 0.0°C Jan. 16, 1972, Jan. 13, 1973.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	SAMPLING DEPTH (FT)	CROSS SECTION LOCATION (% FROM R BANK)	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	CHEMICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)
OCT											
11...	1225	1.0	99	1060	210	7.2	13.0	14	160	9.0	17
13...	1530	1.0	1.0	645	--	--	15.5	--	--	--	--
20...	1215	--	--	239	290	--	11.0	--	--	--	--
NOV											
10...	1215	1.0	99	378	270	7.7	7.3	2	1	12.5	4
DEC											
08...	1250	1.0	99	2080	260	7.4	5.3	4	19	11.7	8
14...	1500	--	--	1870	260	--	7.0	--	--	--	--
FEB											
08...	1500	--	--	232	300	--	1.0	--	--	--	--
15...	1255	1.0	99	1110	320	8.1	5.0	8	6	15.2	6
MAR											
09...	1500	--	--	1220	240	--	11.0	--	--	--	--
MAY											
10...	1100	1.0	1.0	336	270	7.3	22.0	5	1	8.5	4
JUN											
22...	1530	--	--	250	290	--	26.0	--	--	--	--
AUG											
10...	1050	1.0	99	197	310	7.8	25.7	9	12	7.4	6
SEP											
25...	1030	--	--	211	280	--	19.0	--	--	--	--

DATE	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM (COL. PER 100 ML)	TOTAL CALCIUM (CA) (MG/L)	TOTAL MAGNESIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
OCT											
11...	--	--	--	31	7.8	3.9	2.2	82	67	44	9.0
13...	1.9	--	900	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
NOV											
10...	--	--	--	32	16	4.8	1.1	122	100	40	3.0
DEC											
08...	--	--	--	37	8.1	4.6	1.0	134	110	23	5.0
14...	--	--	--	--	--	--	--	--	--	--	--
FEB											
08...	--	--	--	--	--	--	--	--	--	--	--
15...	1.1	<10	<10	37	9.3	7.8	1.5	146	120	21	4.0
MAR											
09...	--	--	--	--	--	--	--	--	--	--	--
MAY											
10...	1.5	11000	100	38	13	7.9	1.5	122	100	38	3.0
JUN											
22...	--	--	--	--	--	--	--	--	--	--	--
AUG											
10...	1.1	5200	400	50	15	8.5	2.2	171	140	28	4.0
SEP											
25...	--	--	--	--	--	--	--	--	--	--	--

03532000 POWELL RIVER NEAR ARTHUR, TN--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED SOLIDS (TONS PER DAY)	TOTAL NONFILTRABLE RESIDUE (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED PHOSPHORUS (P) (MG/L)
OCT											
11...	<.1	6.0	150	.20	753	580	.01	.03	.20	.17	.10
13...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
NOV											
10...	<.1	4.9	160	.22	103	6	.50	.06	.27	.04	.23
DEC											
08...	<.1	3.0	170	.23	955	14	.04	.02	.15	.06	.02
14...	--	--	--	--	--	--	--	--	--	--	--
FEB											
08...	--	--	--	--	--	--	--	--	--	--	--
15...	<.1	.7	160	.22	440	3	.62	.02	.13	.02	--
MAR											
09...	--	--	--	--	--	--	--	--	--	--	--
MAY											
18...	<.1	--	160	.22	145	10	.13	.03	.11	.01	--
JUN											
22...	--	--	--	--	--	--	--	--	--	--	--
AUG											
10...	<.1	--	210	.29	112	19	.56	.04	.10	.04	--
SEP											
25...	--	--	--	--	--	--	--	--	--	--	--

DATE	TOTAL ALUMINUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL BARIUM (BA) (UG/L)	TOTAL BERYLLIUM (BE) (UG/L)	TOTAL BORON (B) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DISSOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)
OCT											
11...	--	--	--	--	--	--	--	--	19000	60	--
13...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
NOV											
10...	800	<2	<100	<10	--	<1	<5	100	630	<50	<10
DEC											
08...	--	--	--	--	--	--	--	--	890	150	--
14...	--	--	--	--	--	--	--	--	--	--	--
FEB											
08...	--	--	--	--	--	--	--	--	--	--	--
15...	300	--	<100	<10	90	<1	--	<10	530	--	<10
MAR											
09...	--	--	--	--	--	--	--	--	--	--	--
MAY											
18...	400	--	<100	<10	--	<1	--	20	530	<50	<10
JUN											
22...	--	--	--	--	--	--	--	--	--	--	--
AUG											
10...	<200	--	100	<10	--	<1	--	40	590	<50	<10
SEP											
25...	--	--	--	--	--	--	--	--	--	--	--

DATE	TOTAL LITHIUM (LI) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL TITANIUM (TI) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
OCT										
11...	--	420	30	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
NOV										
10...	<10	<10	30	<.2	<50	<1	<10	<1000	110	1.2
DEC										
08...	--	90	20	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
FEB										
08...	--	--	--	--	--	--	--	--	--	--
15...	<10	70	--	<.2	<50	<1	<10	<1000	<10	2.0
MAR										
09...	--	--	--	--	--	--	--	--	--	--
MAY										
18...	<10	40	<10	<.2	<50	--	<10	<1000	130	2.3
JUN										
22...	--	--	--	--	--	--	--	--	--	--
AUG										
10...	<10	40	20	<.2	<50	--	<10	<1000	120	1.7
SEP										
25...	--	--	--	--	--	--	--	--	--	--

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at partial-record stations are presented in the following table. Discharge measurements made at miscellaneous sites are given in a second table.

Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations during water year 1977

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)
		POTOMAC RIVER BASIN					
01622400	Buffalo Branch tributary near Christian, Va.	Lat 38°11'55", long 79°13'10", Augusta County, at culvert on State Highway 42, 1.3 mi north of Christian. Datum of gage is 1,622.53 ft above mean sea level.	0.49	1967-77	10- 9-76	3.05	53
01629945	Chub Run near Stanley, Va.	Lat 38°34'31", long 78°27'32", Page County, at culvert on State Highway 689, 2.2 mi east of Stanley.	5.16	1959-69a, 1970-77	10- 9-76	4.11	416
01632500	Long Meadow near Broadway, Va.	Lat 38°34'43", long 78°45'40", Rockingham County, at bridge on State Highway 259, 3.2 mi southeast of Broadway.	8.15	1950-77	10- 9-76	2.09	(*)
01632970	Crooked Run near Mt. Jackson, Va.	Lat 38°45'44", long 78°41'06", Shenandoah County, at culvert on State Highway 263, 2.3 mi west of Mt. Jackson. Datum of gage is 962.84 ft above mean sea level.	6.49	1972-77	10- 9-76	7.25	1,620
01633650	Pughs Run near Woodstock, Va.	Lat 38°55'40", long 78°32'43", Shenandoah County, at culvert, 4.0 mi northeast of Woodstock Datum of gage is 1,027.27 ft above mean sea level.	3.66	1972-77	10- 9-76	7.85	385
01644100	South Fork Sycolin Creek near Leesburg, Va.	Lat 39°04'15", long 77°36'35", Loudoun County, at culvert on U.S. Highway 15, 3.9 mi southwest of Leesburg. Datum of gage is 380.47 ft above mean sea level.	2.05	1966-77	10- 9-76	11.50	1,010
01644200	Lenah Run at Lenah, Va.	Lat 38°57'00", long 77°34'37", Loudoun County, at bridge on U.S. Highway 50 at Lenah.	1.09	1962-77	10- 9-76	5.80	(*)
01652500	Fourmile Run at Alexandria, Va.	Lat 38°50'35", long 77°05'09", Arlington County, at upstream side of bridge on Shirlington Road, at Arlington County-Alexandria City line, 0.1 mi upstream from Interstate Highway 95, and 2.5 mi upstream from mouth. Datum of gage is 28.57 ft above mean sea level.	13.8	1951-69♦, 1970-73, 1974-75♦, 1976-77c	7-12-77	9.28	b3,600
01656200	Broad Run near Warrenton, Va.	Lat 38°48'25", long 77°48'47", Fauquier County, at bridge on State Highway 17, 7 mi north of Warrenton.	2.94	1950-77	10- 9-76	4.78	82

* Discharge not determined.
♦ Operated as a continuous-record gaging station.
a Records furnished by U.S. Department of Agriculture, Soil Conservation Service.
b Approximately.
c Prior to Sept. 28, 1973, at site 0.4 mi downstream at datum 6.02 ft lower.

Annual maximum discharge at crest-stage partial-record stations during water year 1977--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Dis-charge (ft^3/s)
		GREAT WICOMICO RIVER BASIN					
01661600	Great Wicomico River near Horse Head, Va.	Lat 37°53'15", long 76°27'00", Northumberland County, at culvert on State Highway 604, 1.7 mi west of Horse Head. Datum of gage is 42.10 ft above mean sea level.	6.98	1969-77	8-20-69	7.00	1,250
					10- 2-69	4.50	600
					9-12-71	4.80	660
					6-21-72	4.80	660
					10- 6-72	5.10	725
					10-29-73	4.60	620
					10-16-74	5.50	825
					11-13-75	4.53	606
					10- 2-76	4.73	646
		RAPPAHANNOCK RIVER BASIN					
01665050	Pony Mountain Branch near Culpeper, Va.	Lat 38°27'04", long 77°57'24", Culpeper County, at culvert on State Highway 3, 2.7 mi southeast of Culpeper.	.30	1958-69a, 1970-77	10- 9-76	3.98	194
01668300	Farmers Hall Creek near Champlain, Va.	Lat 38°00'05", long 76°58'40", U.S. Highway 17, 1.2 mi southeast of Champlain. Datum of gage is 42.10 ft above mean sea level.	2.18	1966-77	4- 5-77	4.55	62
		PIANKATANK RIVER BASIN					
01669800	My Ladys Swamp near Saluda, Va.	Lat 37°34'34", long 76°31'30", Middlesex County, at culvert on State Highway 629, 4.4 mi southeast of Saluda.	4.81	1969-77	10- 2-76	10.80	(*)
		YORK RIVER BASIN					
01671615	Foster Creek near Ferncliff, Va.	Lat 37°57'35", long 78°11'20", Louisa County, at culvert on U.S. Highway 250, 4.6 mi northwest of Ferncliff. Datum of gage is 424.22 ft above mean sea level.	.61	1960-68a, 1969-77	10-20-76	6.61	327
01671650	Waldrop Creek near Louisa, Va.	Lat 38°00'08", long 78°04'22", Louisa County, at culvert on State Highway 632, 4.2 mi southwest of Louisa. Datum of gage is 361.41 ft above mean sea level.	2.85	1969-77	10- 9-76	5.28	195
01671750	Harris Creek near Trevilians, Va.	Lat 38°01'02", long 78°03'06", Louisa County, at culvert on State Highway 632, 2.7 mi southeast of Trevilians.	3.31	1969-77	10- 9-76	4.50	325
01674200	Reedy Creek near Dawn, Va.	Lat 37°52'55", long 77°21'35", Caroline County, at bridge on U.S. Highway 301, 3.3 mi north of Dawn.	16.8	1950-69, 1972-77	10- 2-76	4.39	152
01674700	Aylett Creek at Aylett, Va.	Lat 37°47'05", long 77°06'23", King William County, at culvert on U.S. Highway 360 at Aylett. Datum of gage is 26.72 ft above mean sea level.	6.17	1969-77	10-20-76	3.59	(*)
		JAMES RIVER BASIN					
02015600	Cowpasture River near Head Waters, Va.	Lat 38°19'30", long 79°26'14", Augusta County, at bridge on U.S. Highway 250, 1.2 mi west of Head Waters. Datum of gage is 1,985.65 ft above mean sea level.	11.3	1949-77	4- 5-77	4.94	704
02017300	Craig Creek at New Castle, Va.	Lat 37°30'06", long 80°06'18", Craig County, at bridge on State Highway 616, at New Castle. Datum of gage is 1,245.69 ft above mean sea level.	112	1967-77	4- 5-77	11.57	5,000

* Discharge not determined.
a Records furnished by U.S. Department of Agriculture, Soil Conservation Service.

Annual maximum discharge at crest-stage partial-record stations during water year 1977--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)
		JAMES RIVER BASIN--Continued					
02017700	Craig Creek tributary near New Castle, Va.	Lat 37°33'21", long 79°59'52", Craig County, at culvert on State Highway 606, 7.1 mi northeast of New Castle.	2.05	1968-77	3-13-77	6.70	276
02018800	North Fork near Fincastle, Va.	Lat 37°32'07", long 79°56'03", Botetourt County, at culvert on State Highway 606, 3.9 mi northwest of Fincastle. Datum of gage is 1,248.65 ft above mean sea level.	4.17	1968-77	3-13-77	6.10	458
02020100	Renick Run near Buchanan, Va.	Lat 37°35'27", long 79°38'04", Botetourt County, at culvert on Frontage Road of Interstate Highway 81, 4.8 mi northeast of Buchanan. Datum of gage is 1,261.85 ft above mean sea level.	2.06	1967-77	10- 9-76	5.85	422
02021700	Cedar Grove Branch near Rockbridge Baths, Va.	Lat 37°53'00", long 79°23'10", Rockbridge County, at culvert on State Highway 39, 1.8 mi southeast of Rockbridge Baths. Datum of gage is 1,041.22 ft above mean sea level.	12.3	1967-77	10- 9-76	8.11	492
02023300	South River near Steeles Tavern, Va.	Lat 37°55'50", long 79°09'55", Augusta County, at bridge on State Highway 608, 3 mi east of Steeles Tavern.	15.7	1951-77	10- 9-76	4.21	976
02027700	Buffalo River tributary near Amherst, Va.	Lat 37°33'45", long 78°57'35", Amherst County, at culvert on U.S. Highway 60, 5.2 mi southeast of Amherst. Datum of gage is 583.66 ft above mean sea level.	.46	1966-77	3-13-77	3.60	38
02028800	Ballinger Creek at Esmont, Va.	Lat 37°49'39", long 78°36'32", Albemarle County, at bridge on State Highway 6, at Esmont.	5.42	1967-77	10- 9-76	12.25	900
02028900	Miller Creek near Scottsville, Va.	Lat 37°48'30", long 78°30'46", Albemarle County, at bridge on State Highway 6, 1.5 mi west of Scottsville. Datum of gage is 309.87 ft above mean sea level.	6.60	1967-77	10- 9-76	9.40	(*)
02029410	Sowell Branch near Charlottesville, Va.	Lat 37°56'30", long 78°32'16", Albemarle County, at culvert on State Highway 20, 6.8 mi southwest of Charlottesville.	1.55	1967-77	1977	<3.0	<60
02030800	Stockton Creek near Afton, Va.	Lat 38°01'48", long 78°48'30", Albemarle County, at culvert on State Highway 6, 1.7 mi east of Afton. Datum of gage is 835.27 ft above mean sea level.	2.80	1967-77	10- 9-76	5.72	189
02030900	Powells Creek near Crozet, Va.	Lat 38°04'50", long 78°43'02", Albemarle County, at bridge on State Highway 684, 1.2 mi northwest of Crozet.	2.32	1967-77	10- 9-76	3.04	(*)
02032200	Doyles River near Whitehall, Va.	Lat 38°12'10", long 78°40'17", Albemarle County, at bridge on State Highway 810, 5.9 mi north of Whitehall. Datum of gage is 928.08 ft above mean sea level.	6.70	1967-77	10- 9-76	11.35	(*)
02032300	Muddy Run near Stanardsville, Va.	Lat 38°14'05", long 78°37'02", Albemarle County, at bridge on State Highway 810, 11 mi southwest of Stanardsville.	3.36	1967-77	10- 9-76	6.75	2,480
02032540	Haneytown Creek near Stanardsville, Va.	Lat 38°16'48", long 78°30'50", Greene County, at bridge on State Highway 810, 4.5 mi west of Stanardsville.	4.45	1967-77	10- 9-76	13.76	1,150

* Discharge not determined.
< Less than.

Annual maximum discharge at crest-stage partial-record stations during water year 1977--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)
		JAMES RIVER BASIN--Continued					
02032550	Lynch River at Nortonsville, Va.	Lat 38°14'16", long 78°32'32", Albemarle County, at bridge on State Highway 810, 7 mi southwest of Stanardsville. Datum of gage is 591.70 ft above mean sea level.	13.6	1967-77	10- 9-76	14.93	9,720
02032700	Schenks Branch at Charlottesville, Va.	Lat 38°02'32", long 78°28'30", Charlottesville City, at bridge just upstream from U.S. Highway 250 bypass. Datum of gage is 371.63 ft above mean sea level.	1.34	1950-77	4- 4-77	5.00	(*)
02033300	Moores Creek near Charlottesville, Va.	Lat 38°00'25", long 78°34'25", Albemarle County, at culvert on access road, 150 ft north of U.S. Highway 29, and 4 mi southwest of Charlottesville.	3.52	1967-77	10- 9-76	15.80	(*)
02034250	Whispering Creek at Sprouses Corner, Va.	Lat 37°31'31", long 78°29'03", Buckingham County, at culvert on U.S. Highway 60, 0.5 mi southeast of Sprouses Corner.	.43	1962-77	12-31-75 10- 9-76	3.70 3.13	d65 32
02035400	Big Lickinghole Creek tributary near Ferncliff, Va.	Lat 37°49'34", long 77°58'23", Goochland County, at bridge on U.S. Highway 250, 10.5 mi southeast of Ferncliff. Datum of gage is 253.58 ft above mean sea level.	.55	1962-77	1977	<2.6	<50
02037800	Falling Creek near Midlothian, Va.	Lat 37°27'15", long 77°35'20", Chesterfield County, at bridge on State Highway 653, 4 mi southeast of Midlothian. Datum of gage is 170.06 ft above mean sea level.	18.1	1951-77	1977	<2.3	<130
02040500	Flat Creek near Amelia, Va.	Lat 37°23'27", long 78°03'45", Amelia County, at bridge on State Highway 681, 6.0 mi northwest of Amelia.	73.0	1946-70, 1972-77	10-20-76	7.84	(*)
02042250	Bailey Branch tributary at Spring Grove, Va.	Lat 37°10'29", long 76°59'13", Surry County, at culvert on State Highway 10, 1.0 mi northwest of Spring Grove. Datum of gage is 61.39 ft above above mean sea level.	.71	1967-77	10-20-76	3.80	60
02042300	Horsepen Branch at Richmond, Va.	Lat 37°35'45", long 77°30'40", Henrico County, at culvert on U.S. Highway 250 (Broad Street), at Richmond.	1.35	1965-77	4- 5-77	4.60	1,020
02042400	Jordans Branch at Richmond, Va.	Lat 37°35'10", long 77°29'55", Henrico County, at bridge on U.S. Highway 250 (Broad Street) at Richmond.	2.41	1965-77	4- 5-77	8.57	(*)
02042700	Collins Run near Providence Forge, Va.	Lat 37°23'59", long 77°02'54", Charles City County, at bridge on State Highway 155, 2.8 mi south of Providence Forge. Datum of gage is 32.74 ft above mean sea level.	2.84	1948, 1951-77	10- 2-76	4.56	176
		CHOWAN RIVER BASIN					
02044200	Falls Creek tributary near Victoria, Va.	Lat 37°02'04", long 78°10'26", Lunenburg County, at culvert on State Highway 49, 3.6 mi northeast of Victoria.	.34	1962-77	10-20-76	4.40	72
02046500	Anderson Branch at Sussex, Va.	Lat 36°55'10", long 77°15'45", Sussex County, at bridge on State Highway 40, 1.0 mi east of Sussex.	5.35	1949-56♦, 1967-77	10-20-76	4.72	65

* Discharge not determined.
♦ Operated as a continuous-record gaging station.
< Less than.
d Revised.

Annual maximum discharge at crest-stage partial-record stations during water year 1977--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum Date	Annual Maximum Gage height (ft)	Annual Maximum Discharge (ft^3/s)
		CHOWAN RIVER BASIN--Continued					
02046800	Three Creek tributary near Drewryville, Va.	Lat 36°41'36", long 77°20'58", Southampton County, at bridge on U.S. Highway 58, 2.8 mi southwest of Drewryville. Datum of gage is 76.10 ft above mean sea level.	1.25	1962-77	10-20-76	3.55	(*)
02050050	Blackwater River tributary near Holland, Va.	Lat 36°38'44", long 76°51'29", Nansemond County, at culvert on State Highway 189, 4.9 mi southwest of Holland. Datum of gage is 29.25 ft above mean sea level.	2.76	1967-77	10-20-76	4.87	104
02051400	Saddletree Creek near Lawrenceville, Va.	Lat 36°43'51", long 77°54'39", Brunswick County, at culvert on U.S. Highway 58, 4.3 mi west of Lawrenceville.	.87	1958-76a	9- 6-74 9-26-75 2- 2-76	1.64 2.28 1.15	55 86 30
		ROANOKE RIVER BASIN					
02057700	Powder Mill Creek at Rocky Mount, Va.	Lat 37°00'26", long 79°52'25", Franklin County, at culvert on U.S. Highway 220 bypass at Rocky Mount.	.64	1967-77	10- 9-76	15.02	152
02061150	Chestnut Branch near Forest, Va.	Lat 37°22'10", long 79°23'16", Bedford County, at culvert on U.S. Highway 460, 5.5 mi west of Forest.	1.65	1960-76a	d6-24-73 8- 4-74 3-19-75 5-29-76	d12.55 5.05 4.61 2.09	d2,300 341 300 88
02063700	Button Creek tributary near Rustburg, Va.	Lat 37°17'05", long 79°04'27", Campbell County, at culvert on State Highway 24, 2.0 mi northeast of Rustburg.	.16	1962-77	10- 9-76	1.34	(*)
02065100	Snake Creek near Brookneal, Va.	Lat 37°00'42", long 78°57'52", Halifax County, at culvert on U.S. Highway 501, 2.1 mi south of Brookneal.	1.68	1967-77	10- 9-76	4.18	114
02065300	Right Hand Fork near Appomattox, Va.	Lat 37°16'12", long 78°49'14", Appomattox County, at culvert on State Highway 727, 5.2 mi south of Appomattox.	2.08	1967-77	10- 9-76	4.77	106
02067810	Maple Swamp Branch near Meadows of Dan, Va.	Lat 36°44'10", long 80°26'28", Patrick County, at culvert on U.S. Highway 58, 1.8 mi west of Meadows of Dan.	.49	1967-77	3-13-77	4.51	72
02075350	Powells Creek near Turbeville, Va.	Lat 36°34'50", long 79°11'20", Halifax County, at culvert on U.S. Highway 58, 8.8 mi southwest of Turbeville. Datum of gage is 383.95 ft above mean sea level.	.28	1958-69 a, 1970-77	10- 9-76	1.21	32
02075450	Little Winns Creek near Turbeville, Va.	Lat 36°35'20", long 79°05'20", Halifax County, at culvert on U.S. Highway 58, 3.6 mi southwest of Turbeville.	2.30	1958-74a	9- 6-74	6.40	731
02076200	Bearskin Creek near Chatham, Va.	Lat 36°50'30", long 79°29'05", Pittsylvania County, at culvert on State Highway 57, 4.5 mi west of Chatham.	4.06	1967-77	10- 9-76	7.54	717
02076700	Blacks Creek near Mt. Airy, Va.	Lat 36°56'40", long 79°09'56", Pittsylvania County, at culvert on State Highway 40, 1.5 mi east of Mt. Airy.	3.44	1966-77	10- 9-76	6.45	439
02079660	Jolly Hollow Branch at Boydton, Va.	Lat 36°40'38", long 78°23'13", Mecklenburg County, at bridge on State Highway 92, 0.5 mi north of Boydton.	3.60	1954-77	1977	<3.2	(*)

* Discharge not determined.
< Less than.
a Records furnished by the U.S. Department of Agriculture, Soil Conservation Service.
d Revised.

Annual maximum discharge at crest-stage partial-record stations during water year 1977--Continued

Station No.	Station Name	Location	Drainage area (mi²)	Period of record	Annual Maximum Date	Annual Maximum Gage height (ft)	Annual Maximum Discharge (ft³/s)
		KANAWHA RIVER BASIN					
03165700	Cripple Creek at Cedar Springs, Va.	Lat 36°49'31", long 81°16'45", Wythe County, at bridge on State Highway 749, 0.6 mi southeast of Cedar Springs.	11.3	1967-77	4- 4-77	15.08	(*)
03165800	Sugar Run near Speedwell, Va.	Lat 36°49'45", long 81°10'10", Wythe County, at bridge on State Highway 685, 1.1 mi north of Speedwell.	3.57	1967-77	4- 4-77	16.46	(*)
03167300	Mira Fork tributary near Dugspur, Va.	Lat 36°50'16", long 80°35'47", Carroll County, at culvert on U.S. Highway 221, 2.2 mi northeast of Dugspur.	.62	1967-77	8-11-77	3.52	66
03167700	Beaverdam Creek at Hillsville, Va.	Lat 36°46'05", long 80°43'33", Carroll County, at culvert on State Highway 1009, 0.2 mi east of Hillsville corporation limits. Datum of gage is 2,373.04 ft above mean sea level.	4.75	1968-77	3-13-77	3.83	229
03168750	Thorne Springs Branch near Dublin, Va.	Lat 37°05'30", long 80°44'34", Pulaski County, at pond dam just upstream from U.S. Highway 11, 3.3 mi southwest of Dublin.	4.77	1957-69a, 1970-77	4- 4-77	2.58	219
03169350	Brush Creek at Terrys Fork, Va.	Lat 37°02'44", long 80°16'45", Floyd County, at culvert 0.8 mi west of Terrys Fork.	1.40	1957-76a	5-28-73 4- 4-74 9-20-75 6-17-76	4.69 2.17 2.73 1.76	348 101 154 56
03171150	Crab Creek tributary near Christiansburg, Va.	Lat 37°07'56", long 80°27'32", Montgomery County, at culvert on U.S. Highway 11, 3.0 mi west of Christiansburg.	1.23	1957-76a	5-28-73 8-26-74 3-14-75 6-16-76	1.38 1.19 1.42 2.12	118 90 123 207
03171500	New River at Eggleston, Va.	Lat 37°17'22", long 80"37'01", Giles County, on left bank 50 ft downstream from highway bridge at Eggleston. Datum of gage is 1,615.59 ft above mean sea level.	2,941	1915-76♦, 1977	4- 5-77	19.01	60,800
03171800	Helveys Mill Creek tributary at Point Pleasant, Va.	Lat 37°07'24", long 81°01'16", Bland County, at culvert on State Highway 42, 0.2 mi west of Point Pleasant.	.38	1957-77	4- 4-77	3.22	(*)
		BIG SANDY RIVER BASIN					
03207400	Prater Creek at Vansant, Va.	Lat 37°13'05", long 82°06'10", Buchanan County, at bridge on State Highway 620, 1 mi south of Vansant. Datum of gage is 1,152.77 ft above mean sea level.	19.8	1951-77	4- 4-77	13.49	b8,000
		TENNESSEE RIVER BASIN					
03471100	Dickey Creek at Sugar Grove, Va.	Lat 36°46'22", long 81°25'10", Smyth County, at bridge on State Highway 16, 0.4 mi southwest of Sugar Grove.	7.28	1967-77	4- 4-77	16.75	410
03471200	South Fork Holston River at Teas, Va.	Lat 36°46'22", long 81°27'05", Smyth County, at bridge on State Highway 601, at Teas. Datum of gage is 2,496.96 ft above mean sea level.	31.1	1967-77	4- 5-77	14.45	(*)
03472500	Beaverdam Creek at Damascus, Va.	Lat 36°37'40", long 81°47'28", Washington County, at Damascus, 0.6 mi upstream from mouth. Datum of gage is 1,946.66 ft above mean sea level.	56.0	1948-59♦, 1960-77	4- 5-77	6.04	4,660

* Discharge not determined.
♦ Operated as a continuous-record gaging station.
a Records furnished by the U.S. Department of Agriculture, Soil Conservation Service.
b Approximately.

Annual maximum discharge at crest-stage partial-record stations during water year 1977--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Dis-charge (ft^3/s)
		TENNESSEE RIVER BASIN--Continued					
03473500	Middle Fork Holston River at Groseclose, Va.	Lat 36°53'19", long 81°20'51", Smyth County, 10 ft downstream from bridge on State Highway 679, at Groseclose. Datum of gage is 2,442.86 ft above mean sea level.	7.39	1948-57♦, 1958-77	4- 4-77	5.03	314
03473800	Staley Creek near Marion, Va.	Lat 36°49'25", long 81°28'25", Smyth County, at bridge on State Highway 688, 2 mi southeast of Marion.	8.33	1951-77	4- 4-77	4.52	515
03474700	Hutton Creek near Chilhowie, Va.	Lat 36°47'00", long 81°44'05", Washington County, at bridge on U.S. Highway 11, 3.3 mi southwest of Chilhowie.	8.32	1967-77	4-4-77	12.15	652
03474800	Hall Creek near Glade Spring, Va.	Lat 36°45'47", long 81°48'15", Washington County, at bridge on U.S. Highway 11, 2.5 mi south of Glade Spring.	7.90	1967-77	4- 4-77	10.87	(*)
03475600	Cedar Creek near Meadowview, Va.	Lat 36°44'50", long 81°51'20", Washington County, at culvert on U.S. Highway 11, 1.2 mi south of Meadowview. Datum of gage is 2,034.66 ft above mean sea level.	3.38	1967-77	4- 4-77	6.21	90
03475700	Spring Creek near Abingdon, Va.	Lat 36°40'43", long 82°02'29", Washington County, at culvert on U.S. Highway 11, 3.8 mi southwest of Abingdon. Datum of gage is 1,977.54 ft above mean sea level.	2.99	1967-77	4- 4-77	5.30	(*)
03487800	Lick Creek near Chatham Hill, Va.	Lat 36°57'44", long 81°28'21", Smyth County, 270 ft upstream from bridge on State Highway 42, 2.9 mi east of Chatham Hill. Datum of gage is 2,076.97 ft above mean sea level.	25.5	1966-68♦, 1969-77	4- 4-77	6.50	1,710
03487850	Possum Jaw Creek near Chatham Hill, Va.	Lat 36°57'41", long 81°27'52", Smyth County, at bridge on State Highway 42, 3.3 mi east of Chatham Hill. Datum of gage is 2,084.80 ft above mean sea level.	4.36	1967-77	4- 4-77	10.46	(*)
03487900	Sprouts Creek near Chatham Hill, Va.	Lat 36°58'10", long 81°30'32", Smyth County, at culvert on State Highway 42, 1.2 mi northeast of Chatham Hill.	7.64	1967-77	4- 4-77	6.80	(*)
03488500	North Fork Holston River at Holston, Va.	Lat 36°46'29", long 82°04'22", Washington County, at bridge on U.S. Highway 19, 0.5 mi east of Holston. Datum of gage is 1,437.11 ft above mean sea level.	402	1952-59♦, 1960-77	4- 5-77	18.60	27,000
03489800	Cove Creek near Shelleys, Va.	Lat 36°39'13", long 82°21'16", Scott County, at bridge on U.S. Highway 58, 2 mi north of Shelleys. Datum of gage is 1,381.53 ft above mean sea level.	17.3	1951-77	4- 5-77	6.41	1,870
03489870	Big Moccasin Creek at Collinwood, Va.	Lat 36°44'16", long 82°19'25", Russell County, at bridge on State Highway 612, at Collinwood. Datum of gage is 1,796.34 ft above mean sea level.	41.9	1967-68♦, 1969-77	4- 5-77	6.83	3,650
03489900	Big Moccasin Creek near Gate City, Va.	Lat 36°38'47", long 82°33'12", Scott County, at bridge on State Highway 71, 1.6 mi east of Gate City. Datum of gage is 1,267.64 ft above mean sea level.	79.6	1953-59♦, 1960-66, 1967-68♦, 1969-77	4- 5-77	9.88	4,580

* Discharge not determined.
♦ Operated as a continuous-record gaging station.

Annual maximum discharge at crest-stage partial-record stations during water year 1977--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)
		TENNESSEE RIVER BASIN--Continued					
03523000	Cedar Creek near Lebanon, Va.	Lat 36°54'29", long 82°02'20", Russell County, 200 ft upstream from bridge on U.S. Highway 19, 2.3 mi east of Lebanon. Datum of gage is 1,928.96 ft above mean sea level.	51.5	1953-59*, 1960-77	4- 5-77	5.83	b4,000
03524500	Guest River at Coeburn, Va.	Lat 36°55'45", long 82°27'23", Wise County, at bridge on State Highway 72, 1.0 mi southwest of Coeburn. Datum of gage is 1,925.80 ft above mean sea level.	87.3	1950-59*, 1960-77	4- 5-77	20.95	18,000
03525000	Stony Creek at Fort Blackmore, Va.	Lat 36°46'30", long 82°34'50", Scott County, 1,000 ft upstream from bridge on State Highway 66, at Fort Blackmore. Datum of gage is 1,270.17 ft above mean sea level.	41.4	1950-52*, 1953-77	4- 5-77	8.29	9,520
03526000	Copper Creek near Gate City, Va.	Lat 36°40'26", long 82°33'57", Scott County, on right bank at upstream side of highway bridge, 2.6 mi northeast of Gate City. Datum of gage is 1,301.95 ft above mean sea level.	106	1948-72*, 1973-77	4- 5-77	13.57	7,660
03527000	Clinch River at Speers Ferry, Va.	Lat 36°38'55", long 82°45'02", Scott County, on right bank 200 ft downstream from bridge on U.S. Highway 58, 0.8 mi northwest of Speers Ferry. Datum of gage is 1,196.52 ft above mean sea level.	1,126	1921-76*, 1977	4- 5-77	36.69	89,000
03529500	Powell River at Big Stone Gap, Va.	Lat 36°52'08", long 82°46'32", Wise County, at bridge on U.S. Highway 23, at Big Stone Gap. Datum of gage is 1,459.07 ft above mean sea level.	112	1945-59*, 1960-77	4- 5-77	16.50	24,000
03530000	South Fork Powell River at Big Stone Gap, Va.	Lat 36°51'54", long 82°46'16", Wise County, at bridge on U.S. Highway 23, at Big Stone Gap.	b40	1945-47*, 1951-77	4- 5-77	12.43	8,000
03530500	North Fork Powell River at Pennington Gap, Va.	Lat 36°46'26", long 83°01'59", Lee County, at bridge on State Highway 621, 0.8 mi north of Pennington Gap.	b70	1945-51*, 1952-77	4- 5-77	16.14	17,000

* Operated as a continuous-record gaging station.
b Approximately.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Measurements at miscellaneous sites

The following list of miscellaneous measurements made at sites throughout the State, except those in the Potomac River basin between Goose Creek and Potomac Creek, were furnished by the Virginia State Water Control Board.

Discharge measurements made at miscellaneous sites during water year 1977

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
		PARKER CREEK BASIN				
Parker Creek	Atlantic Ocean	Lat 37°44'03", long 75°39'14", Accomack County, 500 ft upstream from U.S. Highway 13, 1.3 mi northeast of Accomac.	-	-	8-30-77 8-31-77	*0.08 *.21
Parker Creek	Atlantic Ocean	Lat 37°44'00", long 75°39'09", Accomack County, at culvert on U.S. Highway 13, 1.3 mi northeast of Accomac.	-	-	8-30-77 8-31-77	1.4 2.7
Parker Creek	Atlantic Ocean	Lat 37°43'57", long 75°38'57", Accomack County, at culvert on U.S. Highway 13 business, 1.4 mi northeast of Accomac.	-	-	8-30-77 8-31-77	1.7 2.9
North Fork Parker Creek	Parker Creek	Lat 37°44'46", long 75°36'40", Accomack County, at culvert on State Highway 661, 3.7 mi northeast of Accomac.	-	-	8-30-77 8-31-77	*1.1 *1.1
		NASSAWADOX CREEK BASIN				
Nassawadox Creek	Chesapeake Bay	Lat 37°31'31", long 75°52'37", Northampton County, at culvert on State Highway 606, 2.7 mi upstream from Kelly Cove, and 3.5 mi north of Nassawadox.	a4.2	1968-76	10- 6-76 11-10-76 12-14-76 1-26-77 3- 9-77 4-20-77 5-25-77 7- 5-77 8-11-77 9-15-77	*1.1 *.52 *1.9 *2.4 5.8 *1.9 *.96 *.22 *.18 *.19
		POTOMAC RIVER BASIN				
Abrams Creek	Opequon Creek	Lat 39°10'35", long 78°08'11", Frederick County, 0.5 mi downstream from bridge on State Highway 657, 1.8 mi east of Winchester.	-	-	8-23-77 8-24-77	*6.2 *7.1
Abrams Creek	Opequon Creek	Lat 39°10'47", long 78°07'01", Frederick County, at bridge on State Highway 656, 2.7 mi east of Winchester.	-	-	8-23-77 8-24-77	*11 *11
Abrams Creek	Opequon Creek	Lat 39°10'43", long 78°06'42", Frederick County, 0.3 mi downstream from bridge on State Highway 656, 2.9 mi east of Winchester.	-	-	8-23-77 8-24-77	*16 *12
Abrams Creek	Opequon Creek	Lat 39°10'44", long 78°05'08", Frederick County, at bridge on State Highway 659, 4.3 mi east of Winchester.	-	-	8-23-77 8-24-77	*11 *12
Ash Hollow Run	Abrams Creek	Lat 39°10'57", long 78°05'08", Frederick County, 300 ft upstream from Abrams Creek, 4.2 mi east of Winchester.	-	-	8-23-77 8-24-77	*0 *0
Abrams Creek	Opequon Creek	Lat 39°10'58", long 78°04'32", Frederick County, 100 ft upstream from mouth, 4.8 mi east of Winchester.	-	-	8-23-77 8-24-77	*13 *12
Opequon Creek	Potomac River	Lat 39°10'58", long 78°04'32", Frederick-Clarke County line, 0.2 mi downstream from bridge on State Highway 7, 4.8 mi east of Winchester.	-	-	8-23-77 8-24-77	*16 *15
Redbud Run	Opequon Creek	Lat 39°11'15", long 78°04'49", Frederick County, 0.2 mi downstream from bridge on State Highway 659, 4.7 mi east of Winchester.	-	-	8-23-77 8-24-77	*4.5 *4.0

* Base flow.
a Approximately.

Discharge measurements made at miscellaneous sites during water year 1977--Continued

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
		POTOMAC RIVER BASIN--Continued				
Opequon Creek	Potomac River	Lat 39°11'37", long 78°04'28", Frederick-Clarke County line, at ford on State Highway 664, 4.9 mi northeast of Winchester.	-	-	8-23-77 8-24-77	*21 *19
Dry Marsh Run	Opequon Creek	Lat 39°11'33", long 78°04'10", Clarke County, at bridge on State Highway 645, 5.2 mi northeast of Winchester.	-	-	8-23-77 8-24-77	*3.3 *3.5
Opequon Creek	Potomac River	Lat 39°12'18", long 78°04'10", Frederick-Clarke County line, at ford on State Highway 660, 5.3 mi northeast of Winchester.	-	-	8-23-77 8-24-77	*24 *22
Lick Run	Opequon Creek	Lat 39°12'55", long 78°04'47", Frederick County, 0.2 mi downstream from bridge on State Highway 664, 2.0 mi southeast of Stephenson.	-	-	8-23-77 8-24-77	*.04 *.04
Opequon Creek	Potomac River	Lat 39°13'27", long 78°03'38", Frederick-Clarke County line, at bridge on State Highway 761, 2.9 mi east of Stephenson.	-	-	8-23-77 8-24-77	*24 *25
Little Stony Creek	Stony Creek	Lat 38°55'18", long 78°39'25", Shenandoah County, 250 ft upstream from Woodstock Reservoir, 3.6 mi northwest of Columbia Furnace.	-	-	8- 1-77	*.70
Little Stony Creek	Stony Creek	Lat 38°55'07", long 78°39'27", Shenandoah County, 150 ft downstream from Woodstock Reservoir, 3.4 mi northwest of Columbia Furnace.	-	-	8- 1-77	.24
Wancopin Creek	Goose Creek	Lat 38°58'22", long 78°43'37", Loudoun County, 200 ft downstream from bridge on U.S. Highway 50, 0.5 mi northeast of Middleburg.	-	-	7-19-77 7-20-77 7-20-77 7-20-77 7-21-77	*.05 .23 .19 .15 .08
Wancopin Creek	Goose Creek	Lat 38°58'24", long 77°43'34", Loudoun County, 400 ft downstream from bridge on U.S. Highway 50, 0.6 mi northeast of Middleburg.	-	-	7-19-77 7-20-77	*.12 .26
Wancopin Creek	Goose Creek	Lat 38°58'28", long 77°43'33", Loudoun County, 800 ft downstream from bridge on U.S. Highway 50, 0.6 mi northeast of Middleburg.	-	-	7-19-77 7-20-77	*.15 .20
Wancopin Creek	Goose Creek	Lat 38°58'33", long 77°43'32", Loudoun County, 0.2 mi downstream from bridge on U.S. Highway 50, 0.7 mi northeast of Middleburg.	-	-	7-19-77 7-20-77	*.15 .36
Wancopin Creek	Goose Creek	Lat 38°58'38", long 77°43'32", Loudoun County, 0.3 mi downstream from bridge on U.S. Highway 50, 0.8 mi northeast of Middleburg.	-	-	7-19-77 7-20-77	*.12 .27
Wancopin Creek	Goose Creek	Lat 38°58'53", long 77°43'26", Loudoun County, 0.7 mi downstream from bridge on U.S. Highway 50, 1.1 mi northeast of Middleburg.	-	-	7-19-77 7-20-77	*.10 .35
Wancopin Creek	Goose Creek	Lat 38°59'10", long 77°43'28", Loudoun County, 1.0 mi downstream from bridge on U.S. Highway 50, 1.3 mi north of Middleburg.	-	-	7-19-77 7-20-77 7-21-77	*.11 .42 .15
Horsepen Run	Broad Run	Lat 38°55'27", long 77°23'27", Fairfax County, on West Ox Road (State Highway 608), 0.5 mi upstream from left bank tributary, 1.2 mi southeast of Floris, and 2.7 mi northeast of Chantilly.	1.61	1965	5-13-65 8- 5-77	*b.44 *.04

* Base flow.
b Not previously published.

Discharge measurements made at miscellaneous sites during water year 1977--Continued

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
		POTOMAC RIVER BASIN--Continued				
Horsepen Run	Broad Run	Lat 38°56'31", long 77°25'27", Fairfax County, 200 ft downstream from Frying Pan Branch, 0.6 mi upstream from Horsepen Road (State Highway 605), and 2.8 mi southwest of Herndon.	6.64	-	8- 5-77	*<0.01
Sugarland Run	Potomac River	Lat 38°58'00", long 77°22'17", Fairfax County, at bridge on Washington Street (State Highway 606), inside and 0.3 mi west of the eastern boundary of Herndon.	3.36	1965-70, 1972-74	8- 5-77	*.03
Sugarland Run	Potomac River	Lat 39°00'47", long 77°22'12", Fairfax County, at bridge on Leesburg Pike (State Highway 7), 0.2 mi upstream from Loudoun County line, 1.5 mi northeast of Dranesville, and 3.1 mi north of Herndon.	13.4	-	8- 5-77	*.53
Nichols Run	Potomac River	Lat 39°01'49", long 77°18'57", Fairfax County, at bridge on Beach Mill Road (State Highway 603), 0.6 mi west of Deanwood, 0.7 mi upstream from Jefferson Branch, and 2.7 mi northeast of Dranesville.	3.59	1965	5-13-65 8- 5-77	*b2.8 *.47
Difficult Run	Potomac River	Lat 38°52'29", long 77°20'18", Fairfax County, at bridge on Waples Mill Road (State Highway 665), 2.5 mi northwest of Fairfax.	4.29	-	9-30-77	*.15
South Fork Little Difficult Run	Little Difficult Run	Lat 38°53'52", long 77°21'12", Fairfax County, at bridge on Fox Mill Road (State Highway 665), 1.2 mi upstream from confluence with Little Difficult Run, and 3 mi northwest of the city of Fairfax.	1.59	1966-74	8-29-77	*.14
Piney Branch	Difficult Run	Lat 38°54'06", long 77°15'57", Fairfax County, 30 ft downstream from North Center Street at Vienna.	.29	1962-74	8-29-77	*.01
Wolftrap Creek	Difficult Run	Lat 38°57'02", long 77°17'06", Fairfax County, at bridge on Beulah Road (State Highway 675), 1.0 mi upstream from Difficult Run, and 2.5 mi northwest of Vienna.	6.75	-	8- 5-77	*1.15
Colvin Run	Difficult Run	Lat 38°57'56", long 77°18'36", Fairfax County, at bridge on Hunter Mill Road, 100 ft downstream from tributary, and 4.1 mi east of Herndon.	5.09	1961-74	8- 5-77	*.74
Piney Run	Captain Hickory Run	Lat 38°58'49", long 77°19'09", Fairfax County, at Leesburg Pike (State Highway 7), 2.1 mi upstream from Captain Hickory Run, and 4.3 mi east of Herndon.	2.06	1965-67, 1972	8-29-77	*.32
Scott Run	Potomac River	Lat 38°57'32", long 77°12'21", Fairfax County, at bridge on Old Georgetown Pike, 0.8 mi upstream from mouth, and 2.3 mi northwest of McLean.	4.69	1961-70, 1972-74	8- 5-77	*.92
Pimmit Run	Potomac River	Lat 38°54'41", long 77°11'05", Fairfax County, at bridge on Great Falls Road, 1.1 mi north of city of Falls Church boundary.	2.87	1960-74	8- 4-77	*.06

* Base flow.
< Less than.
b Not previously published.

Discharge measurements made at miscellaneous sites during water year 1977--Continued

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
		POTOMAC RIVER BASIN--Continued				
Pimmit Run	Potomac River	Lat 38°56'10", long 77°08'22", Fairfax County, 150 ft downstream from bridge on Kirby Road, 150 ft upstream from Little Pimmit Run, and 0.8 mi northwest of Arlington County boundary.	8.12	1960-74	8- 5-77	*1.17
Little Pimmit Run Tributary	Little Pimmit Run	Lat 38°54'18", long 77°08'17", Arlington County, about 500 ft upstream from Little Falls Road.	.41	1962-74	8- 4-77	*.20
Little Pimmit Run	Pimmit Run	Lat 38°55'22", long 77°08'43", Fairfax County, at bridge on State Highway 689, 0.4 mi northwest of Arlington County boundary.	2.31	1960-74	8- 4-77	*.25
Long Branch	Fourmile Run	Lat 38°51'31", long 77°07'37", Arlington County, at South Carlyn Springs Road.	.94	1963	8- 5-77	*.14
Lucky Run	Fourmile Run	Lat 38°50'33", long 77°06'16", Alexandria City, on Dinwiddie Street at Walter Reed Drive, 5 mi southeast of city of Falls Church.	1.22	1965	5-13-65 8- 4-77	*b.09 *.03
Holmes Run	Cameron Run	Lat 38°51'57", long 77°12'45", Fairfax County, 100 ft downstream from U.S. Highway 50, at Merrifield.	2.70	1959-70, 1972-74	8- 4-77	*.13
Holmes Run	Cameron Run	Lat 38°50'47", long 77°10'28", Fairfax County, 150 ft downstream from Sleepy Hollow Road, 0.5 mi upstream from Lake Barcroft, and 1.6 mi northeast of Annandale.	7.10	1960-74	8- 5-77	*.16
Tripps Run	Holmes Run	Lat 38°52'46", long 77°10'43", Falls Church City, 200 ft upstream from South Washington Street (U.S. Highways 29 and 211).	1.78	1960-74	8- 4-77	*.21
Tripps Run Tributary	Tripps Run	Lat 38°51'54", long 77°10'16", Fairfax County, at Holmes Run Road 1.0 mi southwest of Seven Corners, Falls Church.	.50	1962-67	8- 5-77	*.21
Tripps Run	Holmes Run	Lat 38°51'37", long 77°09'57", Fairfax County, at Sleepy Hollow Road, 0.7 mi upstream from Lake Barcroft, and 1.0 mi southwest of Falls Church.	4.55	1960-74	8- 5-77	*.47
Backlick Run	Cameron Run	Lat 38°48'03", long 77°11'14", Fairfax County, 10 ft downstream from Leesville Blvd., at Springfield.	2.02	1960-74	8- 5-77	0
Backlick Run	Cameron Run	Lat 38°48'11", long 77°07'41", Alexandria City, 0.9 mi upstream from confluence of Backlick Run and Holmes Run.	13.4	1960-74	8- 4-77	*1.3
Pike Branch	Cameron Run	Lat 38°47'35", long 77°05'02", Fairfax County, 50 ft upstream from Telegraph Road, 0.5 mi south of Alexandria.	2.65	1960-66	8- 4-77	*.16
Penn Daw Outfall	Hunting Creek	Lat 38°47'19", long 77°03'54", Fairfax County, at Huntington Avenue, 0.5 mi southwest of Alexandria.	.82	1960-74	8- 4-77	*.10
Little Hunting Creek	Potomac River	Lat 38°44'21", long 77°05'20", Fairfax County, 50 ft downstream from U.S. Highway 1 at Gum Springs.	1.78	1960, 1962-63	8- 4-77	*.21
Dogue Creek	Potomac River	Lat 38°43'08", long 77°07'46", Fairfax County, at bridge on U.S. Highway 1, 1.8 mi northeast of Accotink.	10.6	1960-63	8- 4-77	*.48

* Base flow.

b Not previously published.

Discharge measurements made at miscellaneous sites during water year 1977--Continued

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
		POTOMAC RIVER BASIN--Continued				
Accotink Creek	Potomac River	Lat 38°51'39", long 77°16'17", Fairfax City, at bridge on Pickett Street.	6.80	1960-74	8- 1-77 9-29-77	a0.22 a.05
Long Branch	Accotink Creek	Lat 38°52'23", long 77°14'34", Fairfax County, at bridge on U.S. Highways 29 and 211, 0.5 mi southeast of Vienna.	1.18	1964-74	8- 1-77	a.02
Long Branch	Accotink Creek	Lat 38°48'39", long 77°14'07", Fairfax County, at bridge on State Highway 620, 2.5 mi southwest of Annandale.	3.71	1947-74	8- 4-77	a.35
Accotink Creek	Potomac River	Lat 38°47'32", long 77°13'08", Fairfax County, at railroad trestle 100 ft downstream from Lake Accotink, 0.9 mi east of Springfield.	30.5	-	9-30-77	a2.4
Accotink Creek	Potomac River	Lat 38°45'15", long 77°12'09", Fairfax County, 100 ft upstream from highway bridge, 1.4 mi northwest of Accotink Station, and 1.6 mi downstream from Calamo Branch.	37.0	1949-57, 1960-61	8-30-77 9-30-77	a9.4 a2.5
Rabbit Branch	Pohick Creek	Lat 38°48'06", long 77°17'19", Fairfax County, at Guinea Road, 0.4 mi upstream from Southern Railroad, and 1.1 mi northwest of Burke.	3.81	1960-62, 1964-69, 1971-74	8-29-77	a.30
Pohick Creek	Potomac River	Lat 38°45'20", long 77°13'37", Fairfax County, at bridge on Hooes Road, 2.9 mi southwest of Springfield.	15.0	1960, 1962-74	8- 5-77	a.96
Middle Run	Pohick Creek	Lat 38°45'01", long 77°14'03", Fairfax County, at bridge on Syndenstricker Road (State Highway 640), 3.2 mi north of Lorton.	3.56	1960, 1962-74	8- 5-77	a.22
South Run	Pohick Creek	Lat 38°44'11", long 77°15'10", Fairfax County, at bridge on Hooes Road, 2.7 mi northwest of Lorton.	6.54	1960, 1962-74	8- 5-77	a.34
Pohick Creek	Potomac River	Lat 38°42'14", long 77°12'52", Fairfax County, at bridge on Telegraph Road, 0.6 mi east of Lorton.	31.0	1960, 1962-74	8-30-77	a1.9
Cub Run	Bull Run	Lat 38°54'30", long 77°28'01", Fairfax County, at downstream side of bridge on U.S. Highway 50, 0.2 mi upstream from unnamed tributary, and 2.2 mi northwest of Chantilly.	7.13	1962-72	8- 1-77	0
Cain Branch	Cub Run	Lat 38°54'08", long 77°27'06", Fairfax County, at U.S. Highway 50, 1.2 mi west of Chantilly.	1.67	1965	5-12-65 8-30-77	ab.11 0
Flatlick Branch	Cub Run	Lat 38°53'21", long 77°25'12", Fairfax County, at U.S. Highway 50, 0.7 mi east of Chantilly.	3.47	1965	5-12-65 8- 1-77	ab.48 a.03
Cub Run	Bull Run	Lat 38°49'59", long 77°27'50", Fairfax County, at bridge on U.S. Highways 29 and 211, 0.4 mi upstream from Big Rocky Run, and 1.9 mi west of Centreville.	39.6	1961-67, 1970	8-30-77	c2.0
Big Rocky Run	Cub Run	Lat 38°50'11", long 77°27'00", Fairfax County, at U.S. Highways 29 and 211, 1.2 mi west of Centreville.	8.27	1965	5-12-65 8-30-77	ab2.1 ad.68

a Base flow.
b Not previously published.
c Includes 1.7 cfs sewage effluent.
d Not base flow; includes large unknown amount of sewage effluent.

Discharge measurements made at miscellaneous sites during water year 1977--Continued

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
		POTOMAC RIVER BASIN--Continued				
Little Rocky Run	Bull Run	Lat 38°48'19", long 77°26'10", Fairfax County, at bridge on Compton Road (State Highway 658), 0.9 mi southeast of Compton's Corner, 1.0 mi upstream from mouth, and 3.2 mi northwest of Clifton.	6.07	1965	5-14-65 8-30-77	*b7.4 *.02
Johnny Moore Creek	Bull Run	Lat 38°47'47", long 77°24'34", Fairfax County, at bridge on Compton Road (State Highway 658), 1.7 mi northwest of Clifton, 2.3 mi southeast of Compton's Corner, and 2.6 mi upstream from mouth.	3.17	-	8- 5-77	*.29
Popes Head Creek	Bull Run	Lat 38°48'57", long 77°20'16", Fairfax County, at bridge on Popes Head Road, 0.2 mi downstream from East Fork, and 2.0 mi southwest of Fairfax.	3.88	-	8-29-77	*.39
Popes Head Creek	Bull Run	Lat 38°46'54", long 77°23'18", Fairfax County, at Clifton Road 600 ft north of Southern Railroad, 1.5 mi southwest of Clifton.	17.2	1965	5-12-65 8- 5-77	*b6.7 *.84
Wolf Run	Occoquan River	Lat 38°44'09", long 77°21'51", Fairfax County, at bridge on Henderson Road (State Highway 643), 1.2 mi upstream from mouth, 1.4 mi southwest of Farrs Corner, and 3.3 mi southeast of Clifton.	5.39	1973-74	8- 5-77	*.25
Sandy Run	Occoquan River	Lat 38°44'53", long 77°19'23", Fairfax County, at bridge on Henderson Road, 3.5 mi upstream from mouth, and 3.7 mi south of Fairfax Station.	2.35	1965-74	5-12-65 8- 5-77	*b.73 *.05
Giles Run	Massey Creek	Lat 38°40'48", long 77°13'36", Fairfax County, at bridge at Jefferson Davis Highway (U.S. Highway 1), 0.8 mi upstream from mouth, and 2 mi northeast of Woodbridge.	4.54	1964-74	8- 4-77	*.62
Potomac Creek	Potomac River	Lat 38°22'34", long 77°27'05", Stafford County, at bridge on U.S. Highway 1, 4.0 mi southwest of Brooke.	36.0	1971-76	10-21-76 3- 8-77 4-18-77 6- 1-77 7- 5-77 8- 8-77 9- 9-77	263 *15 *12 *10 5.4 *3.1 2.1
		WARE RIVER BASIN				
Fox Mill Run	Ware River	Lat 37°24'30", long 76°31'20", Gloucester County, 1,000 ft upstream from bridge on U.S. Highway 17, 0.4 mi southeast of Gloucester.	-	-	8-10-77 8-11-77	*.38 .74
Fox Mill Run	Ware River	Lat 37°24'30", long 76°31'11", Gloucester County, 200 ft upstream from bridge on U.S. Highway 17, 0.5 mi southeast of Gloucester.	-	-	8-10-77 8-11-77	*.57 1.0
Fox Mill Run	Ware River	Lat 37°24'24", long 76°30'54", Gloucester County, 0.3 mi downstream from bridge on U.S. Highway 17, 0.8 mi southeast of Gloucester.	-	-	8-10-77 8-11-77	*.52 .95

* Base flow.

b Not previously published.

Discharge measurements made at miscellaneous sites during water year 1977--Continued

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements Date	Measurements Discharge (ft³/s)
		YORK RIVER BASIN				
Contrary Creek	North Anna River	Lat 38°02'07", long 77°54'10", Louisa County, 1.7 mi northeast of Mineral, 2.5 mi upstream from bridge on State Highway 522.	1.90	1975-76	10-28-76	1.8
					11-23-76	*.74
					12-28-76	1.6
					2- 8-77	1.0
					3-14-77	1.4
					5- 6-77	*.62
					6- 9-77	*.26
					7- 7-77	0
					7-14-77	.04
					7-21-77	.02
					8-24-77	0
					9-23-77	*.01
Contrary Creek	North Anna River	Lat 38°02'29", long 77°53'54", Louisa County, 2.0 mi upstream from bridge on State Highway 522, 2.2 mi northeast of Mineral.	2.34	1975-76	10-28-76	2.1
					11-23-76	*.82
					12-28-76	1.9
					1-13-77	1.1
					2- 8-77	1.1
					3-14-77	1.6
					5- 6-77	*.84
					6- 9-77	*.47
					7-14-77	.06
					7-21-77	.02
					8-24-77	0
					9-23-77	*.01
Contrary Creek	North Anna River	Lat 38°02'52", long 77°53'31", Louisa County, 1.4 mi upstream from bridge on State Highway 522, 2.8 mi northeast of Mineral.	3.72	1975-76	10-28-76	3.2
					11-23-76	*1.6
					12-28-76	3.1
					2- 8-77	2.5
					3-14-77	3.2
					5- 6-77	*1.1
					6- 9-77	*2.6
					7-14-77	.15
					7-21-77	.10
					8-24-77	*.02
					9-23-77	*.13
Contrary Creek	North Anna River	Lat 38°03'46", long 77°51'39", Louisa County, 1.1 mi downstream from bridge on State Highway 522, 4.3 mi northeast of Mineral.	-	1975-76	10-21-76	23
					11-18-76	*3.7
					11-29-76	44
					12-20-76	*5.1
					12-27-76	7.2
					2-25-77	6.5
					3- 3-77	*3.7
					3-28-77	2.7
					4-12-77	2.1
					4-26-77	*2.2
					5-10-77	1.7
					5-24-77	*.91
					6- 9-77	5.4
					6-22-77	*.30
					7- 7-77	*.16
					7- 7-77	*.14
					7- 7-77	*.08
					7-21-77	.16
					8- 4-77	.63
					8-18-77	.20
					9- 8-77	.70
North Anna River	Pamunkey River	Lat 38°00'46", long 77°42'05", Louisa County, at bridge on State Highway 601, 1.1 mi upstream from Northeast Creek, and 3.9 mi southwest of Partlow.	-	1975-76	10-18-76	86
					11-23-76	74
					3- 8-77	102
					4-26-77	98
					7- 5-77	83
					8- 9-77	81
					9-13-77	79
					9-28-77	38
					9-28-77	46
		JAMES RIVER BASIN				
Little Calfpasture River	Maury River	Lat 38°06'04", long 79°19'06", Augusta County, at bridge on State Highway 601, at Augusta Springs.	-	-	7- 6-77	*.16
Little Calpasture River	Maury River	Lat 38°05'38", long 79°19'57", Augusta County, at footbridge along State Highway 811, 0.9 mi southwest of Augusta Springs.	-	-	7- 6-77	*.50

* Base flow.

Discharge measurements made at miscellaneous sites during water year 1977--Continued

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
		JAMES RIVER BASIN--Continued				
Little Calfpasture River	Maury River	Lat 38°05'10", long 79°20'46", Augusta County, at ford 500 ft south of State Highway 811, 1.8 mi east of Craigsville.	-	-	7- 6-77	*0.11
Little Calfpasture River	Maury River	Lat 38°04'40", long 79°22'06", Augusta County, at bridge on State Highway 685, 0.8 mi southeast of Craigsville.	-	-	7- 6-77	*.39
Little Calfpasture River	Maury River	Lat 38°04'23", long 79°22'42", Augusta County, 0.2 mi downstream from bridge on State Highway 684, 0.4 mi south of Craigsville.	-	-	7- 6-77	*.87
Little Calfpasture River	Maury River	Lat 38°02'58", long 79°23'35", Augusta County, at bridge on State Highway 683, 2.3 mi south of Craigsville.	-	-	7- 6-77	*1.9
Little Calfpasture River	Maury River	Lat 38°02'23", long 79°24'38", Rockbridge County, at ford 0.4 mi downstream from Rockbridge-Augusta County line, 2.3 mi northeast of Bells Valley.	-	-	7- 6-77	*3.5
Little Calfpasture River	Maury River	Lat 38°01'38", long 79°25'36", Rockbridge County, at ford 1.1 mi upstream from bridge on State Highway 614, 1.2 mi east of Bells Valley.	-	-	7- 6-77	*4.0
Little Calfpasture River	Maury River	Lat 38°01'08", long 79°25'59", Rockbridge County, at bridge on State Highway 614, 1.1 mi southeast of Bells Valley.	-	-	7- 6-77	*4.5
Little Calfpasture River	Maury River	Lat 38°00'02", long 79°26'33", Rockbridge County, 2.3 mi downstream from bridge on State Highway 614, 1.9 mi south of Bells Valley.	-	-	7- 6-77	*4.8
Parrott Branch	Beaver Creek	Lat 38°04'23", long 78°41'55", Albemarle County, at culvert on State Highway 810, at Crozet.	-	-	6-20-77	*<.01
Appomattox River	James River	Lat 37°17'09", long 77°43'52", Amelia County, 1.4 mi downstream from Winticomack Creek, 3.8 mi south of Winterpock, and at mile 37.7.	-	-	4-28-77 4-28-77 6- 2-77 7-14-77	*552 *505 *353 *552
Upper Appomattox Canal	Appomattox River	Lat 37°13'18", long 77°30'12", Dinwiddie County, 300 ft below VEPCo dam, 1.5 mi west of Matoaca, 1.7 mi upstream from State Highway 600, and 5.2 mi west of Petersburg. (See station 02041650).	-	1971-76	10- 4-76 12-13-76 3- 7-77 5-23-77 9-13-77	14 6.7 5.2 13 10
		GREAT DISMAL SWAMP BASIN				
Cypress Swamp	Great Dismal Swamp	Lat 36°37'30", long 76°36'10", Nansemond County, at bridge on State Highway 32, 0.5 mi downstream from Dragon Swamp, 0.8 mi northeast of Cypress Chapel, and 6.5 mi south of Suffolk.	a23	1953-76	10- 6-76 11-10-76 12-14-76 3- 9-77 4-20-77 5-25-77 7- 5-77 9-15-77	0 0 *47 120 0 *69 0 0
		ROANOKE RIVER BASIN				
Unnamed tributary	Falling River	Lat 37°19'56", long 78°52'04", Appomattox County, 0.2 mi upstream from mouth, 2.0 mi southwest of Appomattox.	-	-	8- 1-77 8- 2-77	*.08 *.08

* Base flow.
< Less than.
a Approximately.

Discharge measurements made at miscellaneous sites during water year 1977--Continued

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
		ROANOKE RIVER BASIN--Continued				
Falling River	Roanoke River	Lat 37°19'47", long 78°52'03", Appomattox County, 0.3 mi upstream from bridge on State Highway 643, 3.0 mi southwest of Appomattox.	-	-	8- 4-77	*0.81
Caldwell Creek	Falling River	Lat 37°19'40", long 78°51'08", Appomattox County, on right bank 130 ft downstream from bridge on State Highway 719, 2.6 mi southwest of Appomattox.	5.13	1954-60	8- 1-77 8- 2-77	*.81 *.94
Falling River	Roanoke River	Lat 37°19'36", long 78°52'14", Appomattox County, at bridge on State Highway 643, 3.3 mi southwest of Appomattox.	-	-	8- 1-77 8- 2-77	*1.8 *2.2
Falling River	Roanoke River	Lat 37°19'09", long 78°53'07", Appomattox County, at bridge on State Highway 645, 2.5 mi southeast of Spout Spring.	-	-	8- 1-77 8- 2-77	*2.4 *2.5
Unnamed tributary	Falling River	Lat 37°20'28", long 78°53'34", Appomattox County, at bridge on State Highway 691, 1.1 mi southeast of Spout Spring.	-	-	8- 1-77 8- 2-77	*.36 *.38
Falling River	Roanoke River	Lat 37°18'23", long 78°53'50", Appomattox County, at bridge on State Highway 647, 3.1 mi south of Spout Spring.	-	-	8- 1-77 8- 2-77	*3.6 *4.4
Mountain Branch	Falling River	Lat 37°18'22", long 78°53'53", Appomattox County, 50 ft upstream from mouth, 3.1 mi south of Spout Spring.	-	-	8- 1-77 8- 2-77	*.44 *.59
Falling River	Roanoke River	Lat 37°16'55", long 78°54'13", Appomattox County, at bridge on State Highway 679, 2.5 mi north of Spring Mills.	-	-	8- 1-77 8- 2-77	*4.3 *4.9
Reedy Creek	Falling River	Lat 37°16'54", long 78°54'14", Appomattox County, at bridge on State Highway 679, 2.5 mi north of Spring Mills.	-	-	8- 1-77 8- 2-77	*2.5 *2.3
Cherrystone Creek	Banister River	Lat 36°48'17", long 79°22'54", Pittsylvania County, at bridge on State Highway 694, 1.7 mi southeast of Chatham.	-	-	9- 6-77 9- 7-77 9- 7-77 9-15-77	*3.7 *3.7 17 9.7
Tanyard Branch	Cherrystone Creek	Lat 36°48'31", long 79°22'59", Pittsylvania County, 0.3 mi downstream from culvert on U.S. Highway 29, 1.4 mi southeast of Chatham.	-	-	9- 6-77 9- 7-77 9- 7-77 9-15-77	*.28 *.27 1.4 *.39
Cherrystone Creek	Banister River	Lat 36°48'21", long 79°22'42", Pittsylvania County, 200 ft downstream from Tanyard Branch, 1.7 mi southeast of Chatham.	-	-	9- 6-77 9- 7-77 9- 7-77 9-15-77	*4.7 8.3 19 11
Cherrystone Creek	Banister River	Lat 36°48'29", long 79°21'57", Pittsylvania County, 0.9 mi downstream from bridge on State Highway 694, 2.1 mi southeast of Chatham.	-	-	9- 6-77 9- 7-77 9-15-77	*4.5 17 11
Cherrystone Creek	Banister River	Lat 36°48'50", long 79°21'03", Pittsylvania County, at bridge on State Highway 703, 2.7 mi east of Chatham.	-	-	9- 6-77 9- 7-77 9-15-77 9-20-77	*4.4 14 11 9.5
Coleman Creek	Allen Creek	Lat 36°40'08", long 78°22'45", Mecklenburg County, 0.2 mi downstream from bridge on U.S. Highway 58, 0.4 mi northeast of Boydton.	-	-	6-28-77 6-29-77 8-17-77 8-25-77	*.89 *.84 *.16 .49

* Base flow.

Discharge measurements made at miscellaneous sites during water year 1977--Continued

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
		ROANOKE RIVER BASIN--Continued				
Coleman Creek	Allen Creek	Lat 36°40'09", long 76°22'33", Mecklenburg County, 0.4 mi downstream from bridge on U.S. Highway 58, 0.7 mi east of Boydton.	-	-	6-28-77 6-29-77	*0.99 *1.0
Coleman Creek	Allen Creek	Lat 36°40'07", long 78°27'[illegible]6", Mecklenburg County, 0.6 mi downstream from bridge on U.S. Highway 58, 0.9 mi east of Boydton.	-	-	8-17-77 8-25-77	*.29 .86
Coleman Creek	Allen Creek	Lat 36°40'07", long 78°22'03", Mecklenburg County, 0.8 mi downstream from bridge on U.S. Highway 58, 1.1 mi east of Boydton.	-	-	6-28-77 6-29-77 8-17-77 8-25-77	*.92 *1.0 *.23 *.80
Coleman Creek	Allen Creek	Lat 36°40'17", long 78°21'27", Mecklenburg County, 1.4 mi downstream from bridge on U.S. Highway 58, 1.1 mi southwest of The Ridge.	-	-	8-17-77 8-25-77	*.37 *1.1
Coleman Creek	Allen Creek	Lat 36°40'08", long 78°20'03", Mecklenburg County, 0.8 mi upstream from mouth, 1.1 mi southeast of The Ridge.	-	-	8-17-77 8-25-77	*.24 1.5
Coleman Creek	Allen Creek	Lat 36°40'11", long 78°31'52", Mecklenburg County, 50 ft upstream from mouth, 1.5 mi southeast of The Ridge.	-	-	6-28-77 6-29-77 8-16-77 8-17-77 8-25-77	*1.4 *1.5 *.23 *.22 *1.7
Allen Creek	Roanoke River	Lat 36°40'08", long 78°30'50", Mecklenburg County, 0.9 mi downstream from bridge on U.S. Highway 58, 1.5 mi southeast of The Ridge.	-	-	6-28-77 6-29-77	*7.3 8.8
Flat Creek	Roanoke River	Lat 36°42'52", long 78°07'47", Mecklenburg County, 200 ft upstream from South Hill STP, at South Hill.	-	-	7-12-77 7-13-77	*.04 *.03
Flat Creek	Roanoke River	Lat 36°42'50", long 78°07'40", Mecklenburg County, 200 ft downstream from South Hill STP, at South Hill.	-	-	7-12-77 7-13-77	*.34 *.26
Flat Creek	Roanoke River	Lat 36°41'48", long 78°07'54", Mecklenburg County, at bridge on State Highway 642, 2.0 mi south of South Hill.	-	-	7-12-77 7-13-77	*.45 *.34
Flat Creek	Roanoke River	Lat 36°41'03", long 78°07'52", Mecklenburg County, 0.9 mi downstream from bridge on State Highway 642, 2.9 mi south of South Hill.	-	-	7-12-77 7-13-77	*1.0 *.74
Flat Creek	Roanoke River	Lat 36°39'28", long 78°09'23", Mecklenburg County, at culvert on State Highway 631, 1.6 mi east of Smiths Crossroads.	-	-	7-12-77 7-13-77	*2.8 *2.0
Flat Creek	Roanoke River	Lat 36°37'48", long 78°10'05", Mecklenburg County, at bridge on State Highway 630, 2.0 mi southeast of Smiths Crossroads.	-	-	7-12-77 7-13-77	*5.4 *3.4
		KANAWHA RIVER BASIN				
Unnamed tributary	South Fork Reed Creek	Lat 36°53'30", long 81°15'15", Wythe County, at bridge on road to sewage treatment plant, 1.2 mi east of Rural Retreat.	-	-	9-27-77 9-28-77	*.48 *.65
Unnamed tributary	South Fork Reed Creek	Lat 36°52'44", long 81°14'18", Wythe County, 100 ft upstream from mouth, 2.5 mi southeast of Rural Retreat.	-	-	9-27-77 9-28-77	*.85 *.90

* Base flow.

Discharge measurements made at miscellaneous sites during water year 1977--Continued

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements Date	Measurements Discharge (ft³/s)
		KANAWHA RIVER BASIN--Continued				
South Fork Reed Creek	Reed Creek	Lat 36°53'10", long 81°14'19", Wythe County, 1.7 mi upstream from bridge on State Highway 699, 2.1 mi southeast of Rural Retreat.	-	-	9-27-77 9-28-77	*9.2 *8.2
South Fork Reed Creek	Reed Creek	Lat 36°53'27", long 81°13'24", Wythe County, at bridge on State Highway 699, 1.9 mi northwest of Crockett.	-	-	9-27-77 9-28-77	*8.9 *7.5
South Fork Reed Creek	Reed Creek	Lat 36°54'29", long 81°14'12", Wythe County, at bridge on State Highway 667, 1.8 mi north of Crockett.	-	-	9-27-77 9-28-77	*9.0 *9.1
South Fork Reed Creek	Reed Creek	Lat 36°55'27", long 81°10'17", Wythe County, at bridge on State Highway 663, 2.9 mi northeast of Crockett.	-	-	9-27-77 9-28-77	*9.5 *9.0
South Fork Reed Creek	Reed Creek	Lat 36°55'44", long 81°07'57", Wythe County, 100 ft upstream from mouth, 3.0 mi west of Wytheville.	-	-	9-27-77 9-28-77	*10 *9.4
		TENNESSEE RIVER BASIN				
Guest River	Clinch River	Lat 36°56'28", long 82°35'52", Wise County, 0.3 mi upstream from bridge on U.S. Highway 58, at Norton.	-	-	9-21-77 9-22-77	*8.6 *7.9
Bear Creek	Guest River	Lat 36°56'30", long 82°35'58", Wise County, 100 ft upstream from mouth, at Norton.	-	-	9-21-77 9-22-77	*2.8 *2.6
Guest River	Clinch River	Lat 36°56'30", long 82°35'33", Wise County, at bridge on U.S. Highway 58, at Norton.	-	-	9-21-77 9-22-77	*12 *16
Guest River	Clinch River	Lat 36°56'32", long 82°34'59", Wise County, 0.6 mi downstream from bridge on U.S. Highway 58, 2.8 mi east of Norton.	-	-	9-21-77	*18
Guest River	Clinch River	Lat 36°56'38", long 82°34'29", Wise County, 1.5 mi downstream from bridge on U.S. Highway 58, 2.2 mi west of Tacoma.	-	-	9-21-77 9-22-77	*12 *14
Guest River	Clinch River	Lat 36°56'08", long 82°33'21", Wise County, 1.5 mi upstream from bridge on State Highway 706, 1.1 mi west of Tacoma.	-	-	9-21-77 9-22-77	*11 *12
Guest River	Clinch River	Lat 36°56'04", long 82°31'57", Wise County, at bridge on State Highway 706, at Tacoma.	-	1976	9-21-77 9-22-77	*13 *12
Guest River	Clinch River	Lat 36°56'05", long 82°30'18", Wise County, 3.4 mi downstream from bridge on State Highway 706, 1.7 mi east of Tacoma.	-	-	9-21-77 9-22-77	*14 *12
Guest River	Clinch River	Lat 36°55'59", long 82°28'27", Wise County, 2.5 mi upstream from bridge on State Highway 72, 0.9 mi southwest of Coeburn.	-	-	9-21-77 9-22-77	*17 *17
Guest River	Clinch River	Lat 36°55'31", long 82°27'49", Wise County, 0.8 mi upstream from bridge on State Highway 72, 1.3 mi south of Coeburn.	-	-	9-21-77	*21
Guest River	Clinch River	Lat 36°55'45", long 82°27'23", Wise County, at bridge on State Highway 72, 1.0 mi southwest of Coeburn.	87.3	1950-59‡, 1960-76	9-21-77 9-22-77	*21 *20

* Base flow.
‡ Operated as a continuous-record gaging station.

Discharge measurements made at miscellaneous sites during water year 1977--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		TENNESSEE RIVER BASIN--Continued				
Guest River	Clinch River	Lat 36°54'12", long 82°25'00", Wise County, 3.6 mi downstream from bridge on State Highway 72, 3.8 mi southeast of Coeburn.			9-21-77 9-22-77	*20 *17
Guest River	Clinch River	Lat 36°52'37", long 82°24'26", Wise-Scott County line, 200 ft upstream from mouth, 5.6 mi southeast of Coeburn.			9-21-77 9-22-77	*21 *22

* Base flow.

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

Samples are collected at sites other than gaging stations and partial-record stations to give better areal coverage in a river basin. Such sites are referred to as miscellaneous sites.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
RAPPAHANNOCK RIVER BASIN												
01661850 - CARTER RUN AT MARSHALL VA. (LAT 38 50 28 LONG 077 51 48)												
JUL , 1976 21...	1030	100	22.0	0	33	0	8.8	2.6	3.5	2.5	40	4.3
01661855 - CARTER RUN TRIB AT MARSHALL VA. (LAT 38 50 22 LONG 077 51 42)												
JUL , 1976 21...	1000	170	22.0	0	48	11	13	3.8	11	3.6	45	14
SEP 30...	0930	200	14.0	--	--	--	--	--	--	--	--	--
01661870 - CARTER RUN TRIB NR MORGANTOWN VA. (LAT 38 49 37 LONG 077 53 10)												
JUL , 1976 21...	1230	48	20.0	0	15	0	4.2	1.1	2.5	1.4	22	2.4
01661890 - HORNER RUN NR MARSHALL VA. (LAT 38 48 52 LONG 077 51 45)												
JUL , 1976 21...	1445	110	27.0	0	37	0	10	3.0	3.8	2.5	45	4.9
01664950 - UNNAMED TRIB 3 ABV CAYNOR LAKE NR NORMAN, VA. (LAT 38 30 05 LONG 078 05 23)												
AUG , 1976 18...	0930	65	18.0	30	20	0	5.1	1.7	3.4	2.6	26	2.0
01664955 - UNNAMED TRIB 2 ABV CAYNOR LAKE NR NORMAN, VA. (LAT 38 30 18 LONG 078 05 08)												
AUG , 1976 18...	1300	63	24.0	20	18	0	4.6	1.5	3.4	1.6	30	1.0
01664960 - UNNAMED TRIB 1 ABV CAYNOR LAKE NR NORMAN, VA. (LAT 38 30 17 LONG 078 04 47)												
AUG , 1976 18...	1135	85	18.0	20	23	4	6.3	1.8	4.6	4.8	23	2.4
01664980 - UNNAMED TRIB TO MT RUN AT HWY 633 NR NORMAN VA (LAT 38 29 45 LONG 078 04 20)												
AUG , 1976 18...	1400	88	19.5	10	32	7	8.0	2.8	3.5	4.0	30	2.0
01665000 - MOUNT RUN NR CULPEPER VA (LAT 38 28 50 LONG 078 03 10)												
AUG , 1976 19...	1030	67	20.0	20	22	0	6.0	1.6	3.0	2.9	31	2.0
01665020 - HUNGRY R BELOW MERRI LAKE DAM NR CULPEPER VA (LAT 38 27 05 LONG 078 02 23)												
AUG , 1976 19...	1330	110	24.0	20	25	0	6.1	2.4	8.4	4.0	41	2.5

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL PHYTO-PLANK-TON (CELLS PER ML)
RAPPAHANNOCK RIVER BASIN--CONTINUED												
01661850 - CARTER RUN AT MARSHALL VA. (LAT 38 50 28 LONG 077 51 48)												
JUL , 1976 21...	.3	12	58	68	.42	1.9	.00	.42	.00	.00	170	4
01661855 - CARTER RUN TRIB AT MARSHALL VA. (LAT 38 50 22 LONG 077 51 42)												
JUL , 1976 21...	.2	17	96	105	1.2	5.5	.15	1.4	.02	.06	220	1300
SEP 30...	--	--	--	--	--	--	--	--	--	--	--	2400
01661870 - CARTER RUN TRIB NR MORGANTOWN VA. (LAT 38 49 37 LONG 077 53 10)												
JUL , 1976 21...	.1	15	52	40	.11	.50	.00	.11	.01	.03	120	4
01661890 - HORNER RUN NR MARSHALL VA. (LAT 38 48 52 LONG 077 51 45)												
JUL , 1976 21...	.1	12	64	66	.59	2.6	.01	.60	.00	.00	170	950
01664950 - UNNAMED TRIB 3 ABV CAYNOR LAKE NR NORMAN, VA. (LAT 38 30 05 LONG 078 05 23)												
AUG , 1976 18...	.2	13	49	49	.79	3.5	.01	.80	.01	.03	370	1100
01664955 - UNNAMED TRIB 2 ABV CAYNOR LAKE NR NORMAN, VA. (LAT 38 30 18 LONG 078 05 08)												
AUG , 1976 18...	.1	14	39	48	.55	2.4	.01	.56	.01	.03	240	270
01664960 - UNNAMED TRIB 1 ABV CAYNOR LAKE NR NORMAN, VA. (LAT 38 30 17 LONG 078 04 47)												
AUG , 1976 18...	.1	16	71	67	2.8	12	.00	2.8	.18	.55	300	100
01664980 - UNNAMED TRIB TO MT RUN AT HWY 633 NR NORMAN VA (LAT 38 29 45 LONG 078 04 20)												
AUG , 1976 18...	.3	7.6	62	52	.96	4.2	.00	.96	.02	.06	20	28000
01665000 - MOUNT RUN NR CULPEPER VA (LAT 38 28 50 LONG 078 03 10)												
AUG , 1976 19...	.1	7.2	55	44	.43	1.9	.00	.43	.01	.03	140	--
01665020 - HUNGRY R BELOW MERRI LAKE DAM NR CULPEPER VA (LAT 38 27 05 LONG 078 02 23)												
AUG , 1976 19...	.1	9.9	85	66	.01	.00	.01	.02	.01	.03	40	520000

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
YORK RIVER BASIN												
01671910 - NORTHEAST CR TRIB 1 NR MINERAL VA. (LAT 38 00 17 LONG 077 56 07)												
JUL , 1976												
07...	1000	42	19.0	80	12	2	2.3	1.4	3.3	1.5	11	6.1
01671912 - NORTHEAST CR ABOVE TRIB 2 NR MINERAL VA. (LAT 37 59 47 LONG 077 56 10)												
JUL , 1976												
07...	1100	--	--	40	10	2	2.5	1.0	2.9	1.4	10	6.0
08...	1000	48	19.0	--	--	--	--	--	--	--	--	--
01671915 - NORTHEAST CR TRIB 2 NR MINERAL VA. (LAT 38 00 36 LONG 077 55 13)												
JUL , 1976												
07...	0945	48	21.0	--	--	--	--	--	--	--	--	--
01671918 - NORTHEAST CR TRIB 2 (AT MOUTH) NR MINERAL VA. (LAT 37 59 50 LONG 077 56 01)												
JUL , 1976												
07...	1040	--	--	30	23	4	5.4	2.4	3.1	2.4	24	11
08...	1045	73	19.0	--	--	--	--	--	--	--	--	--
01671922 - NORTHEAST CR TRIB 3 NR MINERAL VA. (LAT 37 58 49 LONG 077 55 27)												
JUL , 1976												
07...	0955	--	--	--	--	--	--	--	--	--	--	--
01671925 - NORTHEAST CR AT RT 33 NR MINERAL, VA. (LAT 37 58 39 LONG 077 56 22)												
JUL , 1976												
08...	0820	52	19.0	30	17	0	4.0	1.7	3.1	1.5	27	5.5
AUG												
05...	1300	53	19.0	20	18	0	3.7	2.2	3.5	1.4	24	3.2
01671930 - DESPER CR (NR MOUTH) NR MINERAL VA. (LAT 37 58 22 LONG 077 57 03)												
AUG , 1976												
05...	1030	50	18.0	0	15	0	3.2	1.7	4.2	1.0	24	1.8

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL PHYTO-PLANK-TON (CELLS PER ML)
YORK RIVER BASIN--CONTINUED												
01671910 - NORTHEAST CR TRIB 1 NR MINERAL VA. (LAT 38 00 17 LONG 077 56 07)												
JUL , 1976												
07...	.3	10	59	33	.09	.40	.00	.09	.00	.00	220	--
01671912 - NORTHEAST CR ABOVE TRIB 2 NR MINERAL VA. (LAT 37 59 47 LONG 077 56 10)												
JUL , 1976												
07...	.1	11	42	32	.07	.30	.01	.08	.00	.00	240	--
08...	--	--	58	--	--	--	--	--	--	--	--	160
01671915 - NORTHEAST CR TRIB 2 NR MINERAL VA. (LAT 38 00 36 LONG 077 55 13)												
JUL , 1976												
07...	--	--	67	--	--	--	--	--	--	--	--	120
01671918 - NORTHEAST CR TRIB 2 (AT MOUTH) NR MINERAL VA. (LAT 37 59 50 LONG 077 56 01)												
JUL , 1976												
07...	.1	13	54	54	.19	.80	.01	.20	.00	.00	240	--
08...	--	--	65	--	--	--	--	--	--	--	--	84
01671922 - NORTHEAST CR TRIB 3 NR MINERAL VA. (LAT 37 58 49 LONG 077 55 27)												
JUL , 1976												
07...	--	--	--	--	--	--	--	--	--	--	--	1000
01671925 - NORTHEAST CR AT RT 33 NR MINERAL, VA. (LAT 37 58 39 LONG 077 56 22)												
JUL , 1976												
08...	.1	14	36	46	.06	.30	.00	.06	.00	.00	450	120
AUG												
05...	.1	16	56	45	--	--	.00	.05	.00	.00	600	--
01671930 - DESPER CR (NR MOUTH) NR MINERAL VA. (LAT 37 58 22 LONG 077 57 03)												
AUG , 1976												
05...	.1	19	55	46	--	--	.00	.11	.00	.00	160	77

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)
POTOMAC RIVER BASIN								
01644260 - HORSEPEN RUN NR FLORIS VA (LAT 38 55 27 LONG 077 23 56)								
AUG , 1977								
05...	1320	.04	270	30.5	6	120	6	36
01644270 - HORSEPEN RN NR HERNDON VA (LAT 38 56 31 LONG 077 25 27)								
AUG , 1977								
05...	1255	.00	320	23.5	10	150	0	43
01644291 - STAVE RUN NEAR RESTON VA (LAT 38 56 56 LONG 077 22 16)								
NOV , 1976								
01...	1021	.02	85	7.5	20	28	6	8.4
01644295 - SMILAX BRANCH AT RESTON VA (LAT 38 57 10 LONG 077 22 04)								
NOV , 1976								
01...	0945	.27	85	9.0	0	26	12	7.9
JUN , 1977								
01...	1222	.07	80	19.0	8	31	6	8.3
01644300 - SUGARLAND RUN AT HERNDON VA (LAT 38 59 00 LONG 077 22 17)								
AUG , 1977								
05...	1305	.03	390	26.5	37	89	0	24
01644370 - SUGARLAND RUN NEAR DRANESVILLE, VA. (LAT 39 00 47 LONG 077 22 12)								
AUG , 1977								
05...	1215	.53	270	27.0	7	110	12	32
01645160 - NICHOLS RUN NEAR DRANESV.LLE VA (LAT 39 01 49 LONG 077 18 57)								
AUG , 1977								
05...	1115	.47	65	21.5	10	21	0	5.0
01645750 - SF LITTLE DIFFICULT RUN NEAR FAIRFAX VA (LAT 38 53 52 LONG 077 21 12)								
AUG , 1977								
29...	1215	.14	40	20.0	10	14	0	3.4
01645800 - PINEY BRANCH AT VIENNA VA (LAT 38 54 06 LONG 077 15 57)								
AUG , 1977								
29...	1300	.01	2000	25.0	3	280	210	83
01645850 - WOLFTRAP CR NR VIENNA VA (LAT 38 57 02 LONG 077 17 06)								
AUG , 1977								
05...	1207	1.1	100	24.0	7	31	0	8.1

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)
POTOMAC RIVER BASIN--CONTINUED									
01644260 - HORSEPEN RUN NR FLORIS VA (LAT 38 55 27 LONG 077 23 56)									
AUG , 1977 05...	7.6	11	3.4	140	8.2	.1	18	173	163
01644270 - HORSEPEN RN NR HERNDON VA (LAT 38 56 31 LONG 077 25 27)									
AUG , 1977 05...	4.3	11	5.6	140	10	.1	13	202	199
01644291 - STAVE RUN NEAR RESTON VA (LAT 38 56 56 LONG 077 22 16)									
NOV , 1976 01...	1.7	3.3	3.0	27	11	.1	4.0	63	52
01644295 - SMILAX BRANCH AT RESTON VA (LAT 38 57 10 LONG 077 22 04)									
NOV , 1976 01...	2.1	3.9	1.8	20	13	.2	12	70	58
JUN , 1977 01...	2.5	5.3	2.2	31	4.9	.1	17	47	63
01644300 - SUGARLAND RUN AT HERNDON VA (LAT 38 58 00 LONG 077 22 17)									
AUG , 1977 05...	7.0	15	54	120	55	.4	17	266	247
01644370 - SUGARLAND RUN NEAR DRANESVILLE, VA. (LAT 39 00 47 LONG 077 22 12)									
AUG , 1977 05...	7.5	10	6.4	120	19	.2	14	170	161
01645160 - NICHOLS RUN NEAR DRANESVILLE VA (LAT 39 01 49 LONG 077 18 57)									
AUG , 1977 05...	2.0	4.0	1.6	34	2.8	.1	12	50	49
01645750 - SF LITTLE DIFFICULT RUN NEAR FAIRFAX VA (LAT 38 53 52 LONG 077 21 12)									
AUG , 1977 29...	1.4	4.2	1.4	20	1.2	.1	17	44	46
01645800 - PINEY BRANCH AT VIENNA VA (LAT 38 54 06 LONG 077 15 57)									
AUG , 1977 29...	17	330	4.4	85	27	.2	20	1290	1160
01645850 - WOLFTRAP CR NR VIENNA VA (LAT 38 57 02 LONG 077 17 06)									
AUG , 1977 05...	2.6	6.4	2.3	40	5.4	.1	14	80	70

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO, PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL PHYTO-PLANK-TON (CELLS PER ML)
POTOMAC RIVER BASIN--CONTINUED								
01644260 - HORSEPEN RUN NR FLORIS VA (LAT 38 55 27 LONG 077 23 56)								
AUG , 1977								
05...	.17	.80	.01	.18	.00	.00	40	--
01644270 - HORSEPEN RN NR HERNDON VA (LAT 38 56 31 LONG 077 25 27)								
AUG , 1977								
05...	.21	.90	.03	.24	.08	.25	50	--
01644291 - STAVE RUN NEAR RESTON VA (LAT 38 56 56 LONG 077 22 18)								
NOV , 1976								
01...	.32	1.4	.00	.32	.03	.09	70	--
01644295 - SMILAX BRANCH AT RESTON VA (LAT 38 57 10 LONG 077 22 04)								
NOV , 1976								
01...	.21	.90	.00	.21	.00	.00	30	--
JUN , 1977								
01...	.31	1.4	.00	.31	.00	.00	100	--
01644300 - SUGARLAND RUN AT HERNDON VA (LAT 38 58 00 LONG 077 22 17)								
AUG , 1977								
05...	.09	.40	.00	.09	.00	.00	20	--
01644370 - SUGARLAND RUN NEAR DRANESVILLE, VA. (LAT 39 00 47 LONG 077 22 12)								
AUG , 1977								
05...	.34	1.5	.01	.35	.02	.06	30	--
01645160 - NICHOLS RUN NEAR DRANESVILLE VA (LAT 39 01 49 LONG 077 18 57)								
AUG , 1977								
05...	.30	1.3	.00	.30	.00	.00	170	--
01645750 - SF LITTLE DIFFICULT RUN NEAR FAIRFAX VA (LAT 38 53 52 LONG 077 21 12)								
AUG , 1977								
29...	.91	4.0	.00	.91	.00	.00	20	--
01645800 - PINEY BRANCH AT VIENNA VA (LAT 38 54 06 LONG 077 15 57)								
AUG , 1977								
29...	1.6	7.0	.02	1.6	.56	1.7	60	--
01645850 - WOLFTRAP CR NR VIENNA VA (LAT 38 57 02 LONG 077 17 08)								
AUG , 1977								
05...	.70	3.1	.01	.71	.00	.00	130	--

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)
POTOMAC RIVER BASIN--CONTINUED								
01645900 - COLVIN RUN AT RESTON, VA. (LAT 38 57 56 LONG 077 18 36)								
AUG , 1977								
05...	1420	.74	100	20.5	5	31	3	7.8
01645950 - PINEY RUN AT RESTON, VA. (LAT 38 58 49 LONG 077 19 09)								
AUG , 1977								
29...	1400	.32	90	23.0	10	26	11	5.4
01646000 - DIFFICULT RUN NEAR GREAT FALLS VA (LAT 38 58 33 LONG 077 14 46)								
AUG , 1977								
31...	0815	16	85	20.5	35	27	0	6.9
01646200 - SCOTT RUN NEAR MCLEAN VA (LAT 38 57 32 LONG 077 12 21.01)								
AUG , 1977								
05...	1000	.02	190	22.5	6	60	29	16
01646600 - PIMMIT RUN NEAR FALLS CHURCH VA (LAT 38 54 41 LONG 077 11 05)								
AUG , 1977								
04...	1415	.06	220	23.0	3	73	21	21
01646700 - PIMMIT RUN AT ARLINGTON, VA. (LAT 38 56 05 LONG 077 08 29)								
AUG , 1977								
05...	0900	1.2	140	22.5	3	47	15	13
01646750 - LITTLE PIMMIT RUN TRIBUTARY AT ARLINGTON VA (LAT 38 54 18 LONG 077 08 17)								
AUG , 1977								
04...	1510	.20	140	23.5	5	66	28	19
01646800 - LITTLE PIMMIT RUN AT ARLINGTON VA (LAT 38 55 22 LONG 077 08 43)								
AUG , 1977								
04...	1600	.25	150	27.0	8	60	17	20
01652400 - LONG BRANCH AT ARLINGTON VA (LAT 38 51 31 LONG 077 07 37)								
AUG , 1977								
05...	0855	.14	200	25.0	10	97	46	30
01652470 - LUCKY RUN AT ARLINGTON, VA. (LAT 38 50 33 LONG 077 06 16)								
AUG , 1977								
04...	1420	.03	180	27.0	6	66	10	20

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)
POTOMAC RIVER BASIN--CONTINUED									
01645900 - COLVIN RUN AT RESTON, VA. (LAT 38 57 56 LONG 077 18 36)									
AUG , 1977									
05...	2.0	6.6	2.7	34	3.3	.1	5.9	66	57
01645950 - PINEY RUN AT RESTON, VA. (LAT 38 58 49 LONG 077 19 09)									
AUG , 1977									
29...	3.1	5.2	3.3	19	2.5	.1	15	66	60
01646000 - DIFFICULT RUN NEAR GREAT FALLS VA (LAT 38 58 33 LONG 077 14 46)									
AUG , 1977									
31...	2.3	5.4	2.6	32	9.0	.1	11	58	59
01646200 - SCOTT RUN NEAR MCLEAN VA (LAT 38 57 32 LONG 077 12 21.01)									
AUG , 1977									
05...	5.6	9.1	2.5	48	16	.2	11	127	105
01646600 - PIMMIT RUN NEAR FALLS CHURCH VA (LAT 38 54 41 LONG 077 11 05)									
AUG , 1977									
04...	5.1	26	3.3	84	14	.2	15	182	160
01646700 - PIMMIT RUN AT ARLINGTON, VA. (LAT 38 56 05 LONG 077 08 26)									
AUG , 1977									
05...	3.6	7.1	2.4	39	10	.1	11	108	83
01646750 - LITTLE PIMMIT RUN TRIBUTARY AT ARLINGTON VA (LAT 38 54 18 LONG 077 08 17)									
AUG , 1977									
04...	5.1	15	3.2	69	13	.1	23	157	138
01646800 - LITTLE PIMMIT RUN AT ARLINGTON VA (LAT 38 55 22 LONG 077 08 43)									
AUG , 1977									
04...	4.3	11	2.4	62	11	.1	13	123	116
01652400 - LONG BRANCH AT ARLINGTON VA (LAT 38 51 31 LONG 077 07 37)									
AUG , 1977									
05...	5.4	20	4.4	85	37	.2	13	193	178
01652470 - LUCKY RUN AT ARLINGTON, VA. (LAT 38 50 33 LONG 077 06 16)									
AUG , 1977									
04...	3.3	9.0	3.2	54	11	.3	9.9	122	104

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL PHYTO-PLANK-TON (CELLS PER ML)
POTOMAC RIVER BASIN--CONTINUED								
01645900 - COLVIN RUN AT RESTON, VA. (LAT 38 57 56 LONG 077 18 36)								
AUG , 1977								
05...	.28	1.2	.01	.29	.00	.00	70	--
01645950 - PINEY RUN AT RESTON, VA. (LAT 38 58 49 LONG 077 19 09)								
AUG , 1977								
29...	1.4	6.1	.02	1.4	.00	.00	30	--
01646000 - DIFFICULT RUN NEAR GREAT FALLS VA (LAT 38 58 33 LONG 077 14 46)								
AUG , 1977								
31...	.52	2.3	.00	.52	.00	.00	70	--
01646200 - SCOTT RUN NEAR MCLEAN VA (LAT 38 57 32 LONG 077 12 21.01)								
AUG , 1977								
05...	.48	2.1	.00	.48	.00	.00	20	--
01646600 - PIMMIT RUN NEAR FALLS CHURCH VA (LAT 38 54 41 LONG 077 11 05)								
AUG , 1977								
04...	.40	1.8	.01	.41	.00	.00	260	--
01646700 - PIMMIT RUN AT ARLINGTON, VA. (LAT 38 56 05 LONG 077 08 26)								
AUG , 1977								
05...	.91	4.0	.00	.91	.00	.00	70	--
01646750 - LITTLE PIMMIT RUN TRIBUTARY AT ARLINGTON VA (LAT 38 54 18 LONG 077 08 17)								
AUG , 1977								
04...	2.2	9.7	.01	2.2	.02	.06	20	--
01646800 - LITTLE PIMMIT RUN AT ARLINGTON VA (LAT 38 55 22 LONG 077 08 43)								
AUG , 1977								
04...	.40	1.8	.00	.40	.01	.03	20	--
01652400 - LONG BRANCH ÁT ARLINGTON VA (LAT 38 51 31 LONG 077 07 37)								
AUG , 1977								
05...	.30	1.3	.01	.31	.00	.00	170	--
01652470 - LUCKY RUN AT ARLINGTON, VA. (LAT 38 50 33 LONG 077 06 16)								
AUG , 1977								
04...	.01	.00	.00	.01	.00	.00	40	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)
POTOMAC RIVER BASIN--CONTINUED								
01652500 - FOURMILE RUN AT ALEXANDRIA VA (LAT 38 50 36 LONG 077 04 46)								
AUG , 1977								
31...	0950	2.2	345	25.0	5	110	41	32
01652600 - HOLMES RUN AT MERRIFIELD VA (LAT 38 51 57 LONG 077 12 45)								
AUG , 1977								
04...	1130	.13	200	24.0	8	67	31	20
01652610 - HOLMES RUN NEAR ANNANDALE VA (LAT 38 50 47 LONG 077 10 28)								
AUG , 1977								
05...	0945	.16	165	24.5	8	56	7	16
01652620 - TRIPPS RUN AT FALLS CHURCH VA (LAT 38 52 46 LONG 077 08 14)								
AUG , 1977								
04...	1300	.21	200	31.0	3	88	14	29
01652645 - TRIPPS RUN TRIBUTARY NEAR FALLS CHURCH VA (LAT 38 51 54 LONG 077 10 16)								
AUG , 1977								
05...	1040	.21	400	23.0	3	140	61	42
01652650 - TRIPPS RUN NEAR FALLS CHURCH VA (LAT 38 51 37 LONG 077 09 57)								
AUG , 1977								
05...	1012	.47	260	26.0	6	99	17	31
01652910 - BACKLICK RUN AT ALEXANDRIA VA (LAT 38 48 11 LONG 077 07 41)								
AUG , 1977								
05...	1000	1.3	160	28.0	3	63	20	18
01653000 - CAMERON RUN AT ALEXANDRIA, VA. (LAT 38 48 23 LONG 077 06 35)								
AUG , 1977								
30...	1315	3.5	210	30.0	10	70	30	20
01653210 - PIKE BRANCH AT ALEXANDRIA VA (LAT 38 47 35 LONG 077 05 02)								
AUG , 1977								
04...	1200	.16	200	30.5	6	58	23	16
01653447 - PEN DAW OUTFALL AT ALEXANDRIA, VA. (LAT 38 47 19 LONG 077 03 54)								
AUG , 1977								
04...	1230	.10	220	25.0	5	67	32	19

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SIO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)
POTOMAC RIVER BASIN--CONTINUED									
01652500 - FOURMILE RUN AT ALEXANDRIA VA (LAT 38 50 36 LONG 077 04 46)									
AUG , 1977 31...	6.9	25	5.0	82	40	.3	12	211	204
01652600 - HOLMES RUN AT MERRIFIELD VA (LAT 38 51 57 LONG 077 12 45)									
AUG , 1977 04...	4.2	12	3.9	44	25	.3	6.6	132	114
01652610 - HOLMES RUN NEAR ANNANDALE VA (LAT 38 50 47 LONG 077 10 28)									
AUG , 1977 05...	3.8	11	3.5	59	11	.1	7.2	117	98
01652620 - TRIPPS RUN AT FALLS CHURCH VA (LAT 38 52 46 LONG 077 08 14)									
AUG , 1977 04...	3.8	16	4.2	90	13	.1	22	170	161
01652645 - TRIPPS RUN TRIBUTARY NEAR FALLS CHURCH VA (LAT 38 51 54 LONG 077 10 16)									
AUG , 1977 05...	8.8	25	3.9	98	61	.8	7.1	260	233
01652650 - TRIPPS RUN NEAR FALLS CHURCH VA (LAT 38 51 37 LONG 077 09 57)									
AUG , 1977 05...	5.3	18	3.8	100	24	.2	16	195	170
01652910 - BACKLICK RUN AT ALEXANDRIA VA (LAT 38 48 11 LONG 077 07 41)									
AUG , 1977 05...	4.3	12	4.2	52	12	.2	8.7	142	112
01653000 - CAMERON RUN AT ALEXANDRIA, VA. (LAT 38 48 23 LONG 077 06 35)									
AUG , 1977 30...	4.8	15	4.3	49	18	.3	12	127	126
01653210 - PIKE BRANCH AT ALEXANDRIA VA (LAT 38 47 35 LONG 077 05 02)									
AUG , 1977 04...	4.3	13	4.5	42	15	.2	8.3	145	107
01653447 - PEN DAW OUTFALL AT ALEXANDRIA, VA. (LAT 38 47 19 LONG 077 03 54)									
AUG , 1977 04...	4.7	18	4.3	42	19	.3	14	145	133

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED NITRATE (NO3) (MG/L)	DIS- SOLVED NITRITE (N) (MG/L)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS- SOLVED ORTHO, PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHO PHOS- PHATE (PO4) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL PHYTO- PLANK- TON (CELLS PER ML)
POTOMAC RIVER BASIN--CONTINUED								
01652500 - FOURMILE RUN AT ALEXANDRIA VA (LAT 38 50 36 LONG 077 04 46)								
AUG , 1977 31...	.04	.20	.00	.04	.01	.03	110	--
01652600 - HOLMES RUN AT MERRIFIELD VA (LAT 38 51 57 LONG 077 12 45)								
AUG , 1977 04...	.11	.50	.02	.13	.00	.00	70	--
01652610 - HOLMES RUN NEAR ANNANDALE VA (LAT 38 50 47 LONG 077 10 28)								
AUG , 1977 05...	.11	.50	.00	.11	.00	.00	200	--
01652620 - TRIPPS RUN AT FALLS CHURCH VA (LAT 38 52 46 LONG 077 08 14)								
AUG , 1977 04...	.61	2.7	.01	.62	.00	.00	60	--
01652645 - TRIPPS RUN TRIBUTARY NEAR FALLS CHURCH VA (LAT 38 51 54 LONG 077 10 16)								
AUG , 1977 05...	.22	1.0	.00	.22	.00	.00	20	--
01652650 - TRIPPS RUN NEAR FALLS CHURCH VA (LAT 38 51 37 LONG 077 09 57)								
AUG , 1977 05...	.26	1.2	.00	.26	.01	.03	140	--
01652910 - BACKLICK RUN AT ALEXANDRIA VA (LAT 38 48 11 LONG 077 07 41)								
AUG , 1977 05...	.03	.10	.00	.03	.00	.00	320	--
01653000 - CAMERON RUN AT ALEXANDRIA, VA, (LAT 38 48 23 LONG 077 06 35)								
AUG , 1977 30...	.00	.00	.00	.00	.00	.00	70	--
01653210 - PIKE BRANCH AT ALEXANDRIA VA (LAT 38 47 35 LONG 077 05 02)								
AUG , 1977 04...	.26	1.2	.01	.27	.00	.00	30	--
01653447 - PEN DAW OUTFALL AT ALEXANDRIA, VA, (LAT 38 47 19 LONG 077 03 54)								
AUG , 1977 04...	.31	1.4	.03	.34	.00	.00	120	--

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGF (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)
POTOMAC RIVER BASIN--CONTINUED								
01653700 - LITTLE HUNTING CREEK AT GUM SPRINGS VA (LAT 38 44 21 LONG 077 05 20)								
AUG , 1977								
04...	1300	.21	270	27.0	12	80	36	26
01653800 - DOGUE CREEK NEAR ACCOTINK, VA. (LAT 38 43 08 LONG 077 07 44)								
AUG , 1977								
04...	1345	.48	80	24.5	11	26	8	6.5
01653400 - ACCOTINK CREEK AT FAIRFAX VA (LAT 38 51 39 LONG 077 16 17)								
AUG , 1977								
01...	1330	.22	170	27.0	35	55	5	15
01653950 - LONG BRANCH AT VIENNA VA (LAT 38 52 23 LONG 077 14 34)								
AUG , 1977								
01...	1415	.02	150	24.0	20	50	11	13
01654500 - LONG BRANCH NEAR ANNANDALE, VA. (LAT 38 48 39 LONG 077 14 07)								
AUG , 1977								
04...	0945	.35	115	23.5	8	37	6	10
01655000 - ACCOTINK C NR ACCOTINK STATION VA (LAT 38 45 15 LONG 077 12 09)								
AUG , 1977								
30...	1145	9.4	105	24.0	15	34	17	10
01655310 - RABBIT BRANCH NEAR BURKE VA (LAT 38 48 06 LONG 077 19 19)								
AUG , 1977								
29...	1000	.30	90	23.0	40	27	0	6.5
01655350 - POHICK CREEK NEAR SPRINGFIELD VA (LAT 38 45 26 LONG 077 13 37)								
AUG , 1977								
05...	0845	.96	100	22.0	200	32	7	8.8
01655370 - MIDDLE RUN NEAR LORTON, VA. (LAT 38 45 01 LONG 077 14 03)								
AUG , 1977								
05...	0945	.22	110	22.0	8	37	0	11
01655380 - SOUTH RUN NEAR LORTON VA (LAT 38 44 11 LONG 077 15 10)								
AUG , 1977								
05...	1045	.34	65	21.0	12	19	0	5.0

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)
POTOMAC RIVER BASIN--CONTINUED									
01653700 - LITTLE HUNTING CREEK AT GUM SPRINGS VA (LAT 38 44 21 LONG 077 05 20)									
AUG , 1977 04...	3.6	20	4.7	53	19	.3	13	176	153
01653800 - DOGUE CREEK NEAR ACCOTINK, VA. (LAT 38 43 08 LONG 077 07 44)									
AUG , 1977 04...	2.4	5.6	3.2	22	7.9	.1	9.6	64	55
01653900 - ACCOTINK CREEK AT FAIRFAX VA (LAT 38 51 39 LONG 077 16 17)									
AUG , 1977 01...	4.3	12	2.9	61	9.1	.1	11	122	99
01653950 - LONG BRANCH AT VIENNA VA (LAT 38 52 23 LONG 077 14 34)									
AUG , 1977 01...	4.2	9.2	2.4	47	7.3	.1	12	109	89
01654500 - LONG BRANCH NEAR ANNANDALE, VA. (LAT 38 48 39 LONG 077 14 07)									
AUG , 1977 04...	2.8	7.1	2.8	37	6.2	.1	11	79	69
01655000 - ACCOTINK C NR ACCOTINK STATION VA (LAT 38 45 15 LONG 077 12 09)									
AUG , 1977 30...	2.2	6.2	3.4	21	9.3	.1	4.3	66	57
01655310 - RABBIT BRANCH NEAR BURKE VA (LAT 38 48 06 LONG 077 19 19)									
AUG , 1977 29...	2.5	7.7	1.9	37	2.3	.1	15	60	63
01655350 - POHICK CREEK NEAR SPRINGFIELD VA (LAT 38 45 26 LONG 077 13 37)									
AUG , 1977 05...	2.4	5.8	3.1	30	7.8	.1	6.6	69	58
01655370 - MIDDLE RUN NEAR LORTON, VA. (LAT 38 45 01 LONG 077 14 03)									
AUG , 1977 05...	2.2	7.6	3.4	46	6.2	.1	9.2	82	71
01655380 - SOUTH RUN NEAR LORTON VA (LAT 38 44 11 LONG 077 15 10)									
AUG , 1977 05...	1.5	5.3	1.7	27	3.0	.1	14	59	47

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED NITRATE (NO3) (MG/L)	DIS- SOLVED NITRITE (N) (MG/L)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS- SOLVED ORTHO. PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHO PHOS- PHATE (PO4) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL PHYTO- PLANK- TON (CELLS PER ML)
POTOMAC RIVER BASIN--CONTINUED								
01653700 - LITTLF HUNTING CREEK AT GUM SPRINGS VA (LAT 38 44 21 LONG 077 05 20)								
AUG . 1977 04...	.19	.80	.01	.20	.01	.03	600	--
01653800 - DOGUE CREEK NEAR ACCOTINK, VA. (LAT 38 43 08 LONG 077 07 44)								
AUG . 1977 04...	.05	.29	.01	.06	.00	.00	30	--
01653900 - ACCOTINK CREEK AT FAIRFAX VA (LAT 38 51 39 LONG 077 16 17)								
AUG . 1977 01...	.02	.10	.01	.03	.01	.03	230	--
01653950 - LONG BRANCH AT VIENNA VA (LAT 38 52 23 LONG 077 14 34)								
AUG . 1977 01...	.53	2.3	.01	.54	.00	.00	90	--
01654500 - LONG BRANCH NEAR ANNANDALE, VA. (LAT 38 48 39 LONG 077 14 07)								
AUG . 1977 04...	.30	1.3	.00	.30	.00	.00	110	--
01655000 - ACCOTINK C NR ACCOTINK STATION VA (LAT 38 45 15 LONG 077 12 09)								
AUG . 1977 30...	.45	2.0	.01	.46	.00	.00	170	--
01655310 - RABBIT BRANCH NEAR BURKE VA (LAT 38 48 06 LONG 077 19 19)								
AUG . 1977 29...	.04	.20	.00	.04	.00	.00	200	--
01655350 - POHICK CREEK NEAR SPRINGFIELD VA (LAT 38 45 26 LONG 077 13 37)								
AUG . 1977 05...	.28	1.2	.01	.29	.00	.00	30	--
01655370 - MIDDLE RUN NEAR LORTON, VA. (LAT 38 45 01 LONG 077 14 03)								
AUG . 1977 05...	.05	.20	.00	.05	.00	.00	390	--
01655380 - SOUTH RUN NEAR LORTON VA (LAT 38 44 11 LONG 077 15 10)								
AUG . 1977 05...	.06	.30	.00	.06	.00	.00	190	--

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)
POTOMAC RIVER BASIN--CONTINUED								
01655390 - POHICK CREEK AT LORTON VA (LAT 38 42 14 LONG 077 12 52)								
AUG , 1977								
30...	1100	1.9	110	23.5	15	35	7	10
01656900 - FLATLICK BR AT CHANTILLY VA (LAT 38 53 21 LONG 077 25 12)								
AUG , 1977								
01...	1345	.03	310	25.0	20	120	21	35
01656940 - CUB RUN NEAR CENTREVILLE, VA. (LAT 38 49 59 LONG 077 27 50)								
AUG , 1977								
30...	0815	2.0	355	22.0	25	94	66	27
01656950 - BIG ROCKY RUN NR CENTREVILLE, VA. (LAT 38 50 11 LONG 077 27 00)								
AUG , 1977								
30...	0730	.60	200	21.5	20	56	19	16
01657230 - LITTLE ROCKY RUN AT COMPTONS COR VA (LAT 38 48 19 LONG 077 26 10)								
AUG , 1977								
30...	0900	.02	310	20.5	10	76	50	19
01657250 - JOHNNY MOORE CR NR CLIFTON VA (LAT 38 47 47 LONG 077 24 34)								
AUG , 1977								
05...	1440	.29	90	23.0	9	30	1	6.6
01657300 - POPES HD CR NR FAIRFAX VA (LAT 38 48 57 LONG 077 20 16)								
AUG , 1977								
29...	11[illegible]	.38	105	21.0	10	33	6	7.6
01657400 - POPES HD CR AT CLIFTON VA (LAT 38 46 54 LONG 077 23 18)								
AUG , 1977								
05...	1340	.04	80	25.0	19	29	0	6.8
01657435 - WOLF RUN NR CLIFTON VA (LAT 38 44 09 LONG 077 21 51)								
AUG , 1977								
05...	1230	.25	90	26.5	10	31	0	4.3
01657600 - SANDY RUN NEAR FAIRFAX STATION VA (LAT 38 44 53 LONG 077 19 23)								
AUG , 1977								
05...	1145	.05	80	24.0	42	33	0	8.1
01657800 - GILES RUN NEAR WOODBRIDGE VA (LAT 38 40 48 LONG 077 13 36)								
AUG , 1977								
04...	1445	.62	170	22.0	9	44	13	12

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SIO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)
POTOMAC RIVER BASIN--CONTINUED									
01655390 - POHICK CREEK AT LORTON VA (LAT 38 42 14 LONG 077 12 52)									
AUG , 1977 30...	2.5	6.3	3.4	34	7.2	.1	5.2	60	61
01656300 - FLATLICK BR AT CHANTILLY VA (LAT 38 53 21 LONG 077 25 12)									
AUG , 1977 01...	7.8	16	3.2	120	21	.2	11	209	182
01656940 - CUB RUN NEAR CENTREVILLE, VA. (LAT 38 49 59 LONG 077 27 50)									
AUG , 1977 31...	6.4	22	7.0	34	29	.3	8.8	238	171
01656950 - BIG ROCKY RUN NR CENTREVILLE, VA. (LAT 38 50 11 LONG 077 27 00)									
AUG , 1977 30...	4.0	18	5.8	46	17	.3	9.3	127	120
01657230 - LITTLE ROCKY RUN AT COMPTONS COR VA (LAT 38 48 19 LONG 077 26 10)									
AUG , 1977 30...	6.9	33	2.9	32	9.2	.1	9.9	205	173
01657250 - JOHNNY MOORE CR NR CLIFTON VA (LAT 38 47 47 LONG 077 24 34)									
AUG , 1977 05...	3.6	5.0	1.7	36	5.7	.1	13	57	58
01657300 - POPES HD CR NR FAIRFAX VA (LAT 38 48 57 LONG 077 20 16)									
AUG , 1977 29...	3.5	7.2	3.2	33	5.5	.1	11	78	67
01657400 - POPES HD CR AT CLIFTON VA (LAT 38 46 54 LONG 077 23 10)									
AUG , 1977 05...	3.0	5.1	3.0	37	5.4	.1	8.1	63	58
01657435 - WOLF RUN NR CLIFTON VA (LAT 38 44 09 LONG 077 21 51)									
AUG , 1977 05...	2.6	5.6	2.0	47	3.8	.1	13	58	63
01657600 - SANDY RUN NEAR FAIRFAX STATION VA (LAT 38 44 53 LONG 077 19 23)									
AUG , 1977 05...	3.0	5.5	2.5	48	4.7	.1	13	80	66
01657800 - GILES RUN NEAR WOODBRIDGE VA (LAT 38 40 48 LONG 077 13 36)									
AUG , 1977 04...	3.5	13	5.2	38	15	.1	11	108	102

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL PHYTO-PLANK-TON (CELLS PER ML)
POTOMAC RIVER BASIN--CONTINUED								
01655390 - POHICK CREEK AT LORTON VA (LAT 38 42 14 LONG 077 12 52)								
AUG , 1977								
30...	.04	.20	.00	.04	.00	.00	140	--
01656400 - FLATLICK BR AT CHANTILLY VA (LAT 38 53 21 LONG 077 25 12)								
AUG , 1977								
01...	.02	.10	.01	.03	.00	.00	20	--
01656940 - CUB RUN NEAR CENTREVILLE, VA. (LAT 38 49 59 LONG 077 27 50)								
AUG , 1977								
30...	.53	2.3	.19	.72	.21	.64	100	--
01656950 - BIG ROCKY RUN NR CENTREVILLE, VA. (LAT 38 50 11 LONG 077 27 00)								
AUG , 1977								
30...	.86	3.8	.01	.87	.18	.55	70	--
01657230 - LITTLE ROCKY RUN AT COMPTONS COR VA (LAT 38 48 19 LONG 077 26 10)								
AUG , 1977								
30...	.02	.10	.00	.02	.00	.00	70	--
01657250 - JOHNNY MOORE CR NR CLIFTON VA (LAT 38 47 47 LONG 077 24 34)								
AUG , 1977								
05...	.23	1.0	.00	.23	.00	.00	10	--
01657300 - POPES HD CR NR FAIRFAX VA (LAT 38 48 57 LONG 077 20 16)								
AUG , 1977								
29...	.45	2.0	.01	.46	.00	.00	120	--
01657400 - POPES HD CR AT CLIFTON VA (LAT 38 46 54 LONG 077 23 18)								
AUG , 1977								
05...	.33	1.5	.01	.34	.00	.00	30	--
01657435 - WOLF RUN NR CLIFTON VA (LAT 38 44 09 LONG 077 21 51)								
AUG , 1977								
05...	.07	.30	.00	.07	.00	.00	160	--
01657600 - SANDY RUN NEAR FAIRFAX STATION VA (LAT 38 44 53 LONG 077 19 23)								
AUG , 1977								
05...	.00	.00	.01	.01	.00	.00	780	--
01657800 - GILES RUN NEAR WOODBRIDGE VA (LAT 38 40 48 LONG 077 13 36)								
AUG , 1977								
04...	.34	1.5	.01	.35	.01	.03	110	--

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

RAPPAHANNOCK RIVER BASIN

01661850 - CARTER RUN AT MARSHALL VA. (LAT 38 50 28 LONG 077 51 48)

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)
MAR . 1977								
17...	1233	5.0	75	11.5	5	26	10	6.8
APR								
27...	1030	22	70	12.0	--	--	--	--
MAY								
17...	1000	1.1	65	18.0	--	--	--	--
JUN								
08...	1011	.61	60	17.0	--	--	--	--
28...	0955	.50	72	21.0	10	38	2	10
JUL								
14...	1013	.94	90	24.0	--	--	--	--

01661855 - CARTER RUN TRIB AT MARSHALL VA. (LAT 38 50 22 LONG 077 51 42)

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)
MAR . 1977								
17...	0741	1.7	105	6.0	5	34	7	8.7
APR								
27...	0840	1.0	125	9.0	--	--	--	--
MAY								
17...	0830	.64	130	16.0	--	--	--	--
JUN								
08...	0824	.23	170	11.0	--	--	--	--
08...	0825	.23	170	11.0	--	--	--	--
28...	0840	.18	195	20.0	10	52	9	14
JUL								
14...	1110	.14	220	24.0	--	--	--	--

01661870 - CARTER RUN TRIB NR MORGANTOWN VA. (LAT 38 49 37 LONG 077 53 10)

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)
MAR . 1977								
24...	0903	3.4	37	5.5	5	13	3	3.4
APR								
27...	1237	1.5	39	14.0	--	--	--	--
MAY								
17...	1130	1.0	36	18.0	--	--	--	--
JUN								
08...	1122	.51	42	17.0	--	--	--	--
28...	1117	.31	49	19.0	10	17	0	4.5
JUL								
18...	0900	.30	57	20.0	--	--	--	--

01661890 - HORNER RUN NR MARSHALL VA. (LAT 38 48 52 LONG 077 51 49)

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)
MAR . 1977								
24...	1203	9.8	80	8.0	5	32	11	7.8
APR								
28...	0950	2.6	75	13.0	--	--	--	--
MAY								
17...	1300	1.4	95	23.0	--	--	--	--
JUN								
08...	1304	.68	90	19.0	--	--	--	--
29...	1015	.38	118	24.0	10	40	0	13
JUL								
18...	1206	.84	92	25.0	--	--	--	--

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

RAPPAHANNOCK RIVER BASIN--CONTINUED

01661050 - CARTER RUN AT MARSHALL VA. (LAT 38 50 28 LONG 077 51 48)

DATE	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)
MAR , 1977									
17...	2.2	3.5	2.2	20	7.8	.0	11	60	52
APR									
27...	--	--	--	--	--	--	--	57	--
MAY									
17...	--	--	--	--	--	--	--	42	--
JUN									
08...	--	--	--	--	--	--	--	58	--
29...	3.1	4.4	2.5	44	3.7	.1	7.7	85	59
JUL									
19...	--	--	--	--	--	--	--	71	--

01661055 - CARTER RUN TRIB AT MARSHALL VA. (LAT 38 50 22 LONG 077 51 42)

DATE	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)
MAR , 1977									
17...	3.0	8.0	2.4	33	12	.0	13	86	80
APR									
27...	--	--	--	--	--	--	--	81	--
MAY									
17...	--	--	--	--	--	--	--	88	--
JUN									
09...	--	--	--	--	--	--	--	111	--
08...	--	--	--	--	--	--	--	--	--
28...	4.1	17	4.5	52	12	.1	17	127	118
JUL									
18...	--	--	--	--	--	--	--	177	--

01661070 - CARTER RUN TRIB NR MORGANTOWN VA. (LAT 38 49 37 LONG 077 53 10)

DATE	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)
MAR , 1977									
24...	1.1	2.3	1.3	12	4.7	.0	13	42	35
APR									
27...	--	--	--	--	--	--	--	40	--
MAY									
17...	--	--	--	--	--	--	--	20	--
JUN									
09...	--	--	--	--	--	--	--	36	--
28...	1.6	2.9	1.5	25	1.0	.0	15	50	41
JUL									
19...	--	--	--	--	--	--	--	47	--

01661090 - HORNER RUN NR MARSHALL VA. (LAT 38 48 52 LONG 077 51 45)

DATE	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)
MAR , 1977									
24...	3.0	3.2	.9	26	10	.0	14	65	58
APR									
28...	--	--	--	--	--	--	--	65	--
MAY									
17...	--	--	--	--	--	--	--	62	--
JUN									
08...	--	--	--	--	--	--	--	66	--
29...	3.8	6.0	2.7	62	3.2	.1	12	95	75
JUL									
18...	--	--	--	--	--	--	--	95	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

RAPPAHANNOCK RIVER BASIN--CONTINUED

01661050 - CARTER RUN AT MARSHALL VA. (LAT 38 50 28 LONG 077 51 48)

DATE	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL PHYTO-PLANK-TON (CELLS PER ML)
MAR., 1977								
17...	.80	3.5	.01	.81	.04	.03	60	7900
APR								
27...	--	--	--	--	--	--	--	1800
MAY								
17...	--	--	--	--	--	--	--	1000
JUN								
08...	--	--	--	--	--	--	--	310
28...	.21	.90	.00	.21	.05	.15	70	8200
JUL								
18...	--	--	--	--	--	--	--	6000

01661055 - CARTER RUN TRIB AT MARSHALL VA. (LAT 38 50 22 LONG 077 51 42)

DATE	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL PHYTO-PLANK-TON (CELLS PER ML)
MAR., 1977								
17...	1.1	4.8	.01	1.1	.27	.03	170	300
APR								
27...	--	--	--	--	--	--	--	1303
MAY								
17...	--	--	--	--	--	--	--	810
JUN								
06...	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	150
28...	.32	1.6	.02	.34	.03	.09	300	220
JUL								
18...	--	--	--	--	--	--	--	6200

01661070 - CARTER RUN TRIB NR MORGANTOWN VA. (LAT 38 48 37 LONG 077 53 10)

DATE	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL PHYTO-PLANK-TON (CELLS PER ML)
MAR., 1977								
24...	.13	.60	.00	.13	.00	.00	80	270
APR								
27...	--	--	--	--	--	--	--	350
MAY								
17...	--	--	--	--	--	--	--	450
JUN								
08...	--	--	--	--	--	--	--	2000
28...	.15	.70	.00	.15	.00	.00	110	200
JUL								
18...	--	--	--	--	--	--	--	120

01661090 - HORNER RUN NR MARSHALL VA. (LAT 38 48 52 LONG 077 51 45)

DATE	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL PHYTO-PLANK-TON (CELLS PER ML)
MAR., 1977								
24...	.57	2.5	.00	.57	.01	.03	70	290
APR								
28...	--	--	--	--	--	--	--	1200
MAY								
17...	--	--	--	--	--	--	--	930
JUN								
08...	--	--	--	--	--	--	--	220
28...	.37	1.6	.02	.39	.00	.00	150	730
JUL								
18...	--	--	--	--	--	--	--	650

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

RAPPAHANNOCK RIVER BASIN--CONTINUED

01664950 - UNNAMED TRIB 3 ABV CAYNOR LAKE NR NORMAN, VA. (LAT 38 30 05 LONG 078 05 23)

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)
NOV., 1976								
05...	0930	--	48	9.0	2	16	0	3.3
DEC								
15...	1115	--	42	4.0	--	--	--	--
FEB., 1977								
15...	1300	--	45	3.5	10	14	0	2.9
MAR								
30...	1000	--	52	16.5	--	--	--	--
APR								
05...	1530	--	62	11.0	--	--	--	--
MAY								
26...	0910	--	70	18.0	--	--	--	--
26...	0915	--	70	19.0	--	--	--	--

01664955 - UNNAMED TRIB 2 ABV CAYNOR LAKE NR NORMAN, VA. (LAT 38 30 10 LONG 078 05 08)

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)
NOV., 1976								
05...	1100	--	64	9.0	2	10	0	4.3
DEC								
15...	1030	--	57	9.0	--	--	--	--

01664980 - UNNAMED TRIB TO MT RUN AT HWY 633 NR NORMAN, VA. (LAT 38 29 45 LONG 078 04 20)

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)
NOV., 1976								
05...	0850	--	58	6.5	20	20	4	4.7
DEC								
15...	0930	--	60	3.0	--	--	--	--
FEB., 1977								
16...	1400	--	55	5.5	10	16	0	3.4
MAR								
30...	0900	--	56	16.0	--	--	--	--
APR								
05...	1630	--	68	12.0	--	--	--	--
20...	0830	--	62	19.5	--	--	--	--
MAY								
26...	1030	--	80	23.0	--	--	--	--
JUL								
01...	0915	--	98	24.0	--	--	--	--

01665000 - MOUNT RUN NR CULPEPER VA (LAT 38 28 50 LONG 078 03 10)

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)
NOV., 1976								
05...	1330	--	60	9.0	30	14	1	3.6
FEB., 1977								
16...	1015	--	50	2.0	10	15	0	3.1
MAR								
30...	1100	--	56	17.0	--	--	--	--
APR								
05...	1030	--	55	11.0	--	--	--	--
20...	0950	--	55	17.0	--	--	--	--
MAY								
26...	1130	--	62	21.5	--	--	--	--
JUL								
01...	1000	--	60	23.0	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

RAPPAHANNOCK RIVER BASIN--CONTINUED

01664950 - UNNAMED TRIB 3 ABV CAYNOR LAKE NR NORMAN, VA. (LAT 38 30 05 LONG 078 05 23)

DATE	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)
NOV . 1976 05...	1.3	2.8	1.4	19	2.4	.0	13	38	41
DEC 15...	--	--	--	--	--	--	--	--	--
FEB . 1977 16...	1.6	3.1	1.7	20	2.1	.0	13	43	41
MAR 30...	--	--	--	--	--	--	--	46	--
APR 05...	--	--	--	--	--	--	--	58	--
MAY 24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	44	--

01664955 - UNNAMED TRIB 2 ABV CAYNOR LAKE NR NORMAN, VA. (LAT 38 30 18 LONG 078 05 08)

DATE	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)
NOV . 1976 05...	1.9	3.8	1.7	24	2.7	.0	14	53	51
DEC 15...	--	--	--	--	--	--	--	--	--

01664980 - UNNAMED TRIB TO MT RUN AT HWY 633 NR NORMAN, VA. (LAT 38 29 45 LONG 078 04 20)

DATE	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)
NOV . 1976 05...	1.9	3.1	2.0	19	3.7	.0	12	48	46
DEC 15...	--	--	--	--	--	--	--	--	--
FEB . 1977 16...	1.7	3.1	2.6	20	3.4	.0	9.8	44	42
MAR 30...	--	--	--	--	--	--	--	54	--
APR 05...	--	--	--	--	--	--	--	62	--
20...	--	--	--	--	--	--	--	47	--
MAY 24...	--	--	--	--	--	--	--	74	--
JUL 01...	--	--	--	--	--	--	--	65	--

01665000 - MOUNT RUN NR CULPEPER VA (LAT 38 28 50 LONG 078 03 10)

DATE	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)
NOV . 1976 05...	1.3	2.3	2.1	16	3.8	.0	10	39	38
FEB . 1977 16...	1.7	2.7	2.0	20	3.2	.0	9.9	45	38
MAR 30...	--	--	--	--	--	--	--	40	--
APR 05...	--	--	--	--	--	--	--	54	--
20...	--	--	--	--	--	--	--	36	--
MAY 24...	--	--	--	--	--	--	--	50	--
JUL 01...	--	--	--	--	--	--	--	35	--

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

RAPPAHANNOCK RIVER BASIN--CONTINUED

01664950 - UNNAMED TRIB 3 ABV CAYNOR LAKE NR NORMAN, VA. (LAT 38 30 05 LONG 078 05 23)

DATE	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL PHYTO-PLANK-TON (CELLS PER ML)
NOV , 1976								
05...	.90	4.0	.00	.90	.00	.00	80	--
DEC								
15...	--	--	--	--	--	--	--	270
FEB , 1977								
16...	.77	3.4	.01	.78	.01	.03	140	14000
MAR								
30...	--	--	--	--	--	--	--	1900
APR								
05...	--	--	--	--	--	--	--	1200
MAY								
24...	--	--	--	--	--	--	--	660
24...	--	--	--	--	--	--	--	--

01664955 - UNNAMED TRIB 2 ABV CAYNOR LAKE NR NORMAN, VA. (LAT 38 30 18 LONG 078 05 08)

DATE	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL PHYTO-PLANK-TON (CELLS PER ML)
NOV , 1976								
05...	1.2	5.3	.01	1.2	.00	.00	50	--
DEC								
15...	--	--	--	--	--	--	--	330

01664980 - UNNAMED TRIB TO MT RUN AT HWY 633 NR NORMAN, VA. (LAT 38 29 45 LONG 078 04 20)

DATE	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL PHYTO-PLANK-TON (CELLS PER ML)
NOV , 1976								
05...	1.1	4.9	.00	1.1	.00	.00	180	--
DEC								
15...	--	--	--	--	--	--	--	670
FEB , 1977								
16...	.79	3.5	.01	.80	.01	.03	270	660
MAR								
30...	--	--	--	--	--	--	--	14000
APR								
05...	--	--	--	--	--	--	--	4900
20...	--	--	--	--	--	--	--	--
MAY								
24...	--	--	--	--	--	--	--	19000
JUL								
01...	--	--	--	--	--	--	--	19000

01665000 - MOUNT RUN NR CULPEPER VA (LAT 38 28 50 LONG 078 03 10)

DATE	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL PHYTO-PLANK-TON (CELLS PER ML)
NOV , 1976								
05...	.65	2.9	.00	.65	.00	.00	170	--
FEB , 1977								
16...	.52	2.3	.01	.53	.00	.00	220	1700
MAR								
30...	--	--	--	--	--	--	--	5100
APR								
05...	--	--	--	--	--	--	--	5400
20...	--	--	--	--	--	--	--	--
MAY								
24...	--	--	--	--	--	--	--	3200
JUL								
01...	--	--	--	--	--	--	--	1500

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)
RAPPAHANNOCK RIVER BASIN--CONTINUED								
01665020 - HUNGRY R BELOW MERRI LAKE DAM NR CULPEPER VA (LAT 38 27 05 LONG 078 02 23)								
NOV , 1976								
05...	1245	--	70	9.0	30	22	6	5.6
FEB , 1977								
16...	0900	--	65	4.5	10	21	1	4.6
APR								
05...	1935	--	75	11.0	--	--	--	--
20...	1300	--	65	22.0	--	--	--	--
JUL								
01...	1100	--	112	27.0	--	--	--	--
01665025 - BOND BR NR CULPEPER VA (LAT 38 28 10 LONG 078 02 02)								
DEC , 1976								
15...	1530	--	52	5.0	--	--	--	--
01665035 - MT RN AT PELLAM LK DM AT CULPEPER VA (LAT 38 28 06 LONG 078 01 00)								
NOV , 1976								
05...	1415	--	58	9.5	180	15	4	3.7
DEC								
15...	1245	--	60	3.5	--	--	--	--
FEB , 1977								
16...	1100	--	67	4.5	10	22	4	4.9
MAR								
30...	1210	--	63	17.5	--	--	--	--
APR								
05...	1730	--	60	12.0	--	--	--	--
20...	1115	--	58	21.0	--	--	--	--
MAY								
24...	1300	--	70	22.0	--	--	--	--
JUL								
01...	1330	--	72	25.5	--	--	--	--
01665040 - MT RN 300 YDS BELOW DAM AT CULPEPER VA (LAT 38 28 06 LONG 078 00 45)								
DEC , 1976								
15...	1330	--	60	3.5	--	--	--	--
01665045 - MT RUN 660 YDS BELOW PELLAM LK DM AT CULPEPER VA (LAT 38 28 07 LONG 078 00 32)								
NOV , 1976								
05...	1415	--	58	9.5	100	25	9	7.6
JUL , 1977								
01...	1415	--	70	26.0	--	--	--	--

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)
RAPPAHANNOCK RIVER BASIN--CONTINUED									
01665020 - HUNGRY R BELOW MERRI LAKE DAM NR CULPEPER VA (LAT 38 27 05 LONG 078 02 23)									
NOV , 1976									
05...	1.9	4.2	2.6	19	5.7	.1	11	57	50
FEB , 1977									
16...	2.2	3.8	2.7	24	4.7	.0	10	52	47
APR									
05...	--	--	--	--	--	--	--	71	--
20...	--	--	--	--	--	--	--	44	--
JUL									
01...	--	--	--	--	--	--	--	78	--
01665025 - BOND BR NR CULPEPER VA (LAT 38 28 10 LONG 078 02 02)									
DEC , 1976									
15...	--	--	--	--	--	--	--	--	--
01665035 - MT RN AT PELLAM LK DM AT CULPEPER VA (LAT 38 28 06 LONG 078 01 00)									
NOV , 1976									
05...	1.5	1.8	3.2	14	5.7	.1	6.3	56	35
DEC									
15...	--	--	--	--	--	--	--	--	--
FEB , 1977									
16...	2.3	3.3	3.2	21	4.8	.0	8.7	50	45
MAR									
30...	--	--	--	--	--	--	--	57	--
APR									
05...	--	--	--	--	--	--	--	54	--
20...	--	--	--	--	--	--	--	42	--
MAY									
24...	--	--	--	--	--	--	--	50	--
JUL									
01...	--	--	--	--	--	--	--	40	--
01665040 - MT RN 300 YDS BELOW DAM AT CULPEPER VA (LAT 38 28 06 LONG 078 00 45)									
DEC , 1976									
15...	--	--	--	--	--	--	--	--	--
01665045 - MT RUN 660 YDS BELOW PELLAM LK DM AT CULPEPER VA (LAT 38 28 07 LONG 078 00 32)									
NOV , 1976									
05...	1.5	1.8	3.2	20	5.7	.3	6.4	58	42
JUL , 1977									
01...	--	--	--	--	--	--	--	42	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL PHYTO-PLANK-TON (CELLS PER ML)
RAPPAHANNOCK RIVER BASIN--CONTINUED								
01665020 - HUNGRY R BELOW MERRI LAKE DAM NR CULPEPER VA (LAT 38 27 05 LONG 078 02 23)								
NOV . 1976								
05...	.53	2.3	.00	.53	.01	.03	310	--
FEB . 1977								
16...	.26	1.2	.01	.27	.01	.03	210	600
APR								
05...	--	--	--	--	--	--	--	230
20...	--	--	--	--	--	--	--	--
JUL								
01...	--	--	--	--	--	--	--	100000
01665025 - ROND RR NR CULPEPER VA (LAT 38 28 10 LONG 078 02 02)								
DEC . 1976								
15...	--	--	--	--	--	--	--	180
01665035 - MT RN AT PELLAM LK DM AT CULPEPER VA (LAT 38 28 06 LONG 078 01 00)								
NOV . 1976								
05...	.52	2.3	.03	.55	.01	.03	280	--
DEC								
15...	--	--	--	--	--	--	--	1800
FEB . 1977								
16...	.51	2.3	.01	.52	.00	.00	80	14000
MAR								
30...	--	--	--	--	--	--	--	5000
APR								
05...	--	--	--	--	--	--	--	1800
20...	--	--	--	--	--	--	--	--
MAY								
24...	--	--	--	--	--	--	--	6700
JUL								
01...	--	--	--	--	--	--	--	15000
01665040 - MT RN 300 YDS BELOW DAM AT CULPEPER VA (LAT 38 28 06 LONG 078 00 45)								
DEC . 1976								
15...	--	--	--	--	--	--	--	2800
01665045 - MT RUN 660 YDS BELOW PELLAM LK DM AT CULPEPER VA (LAT 38 28 07 LONG 078 00 32)								
NOV . 1976								
05...	.53	2.3	.03	.56	.01	.03	260	--
JUL . 1977								
01...	--	--	--	--	--	--	--	32000

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

TENNESSEE RIVER BASIN

03527000 - CLINCH RIVER AT SPEERS FERRY, VA (LAT 36 38 55 LONG 082 45 02)

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)
OCT												
13...	1430	1590	75	13.5	2	130	29	38	7.9	3.2	2.8	120

DATE	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED NITRATE (N) (MG/L)	DISSOLVED NITRATE (NO3) (MG/L)	DISSOLVED NITRITE (N) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO PHOSPHATE (PO4) (MG/L)	DISSOLVED IRON (FE) (UG/L)
OCT												
13...	25	.1	6.7	158	153	1.3	5.8	.00	1.3	.02	.06	10

ACCOMACK COUNTY

375600075280002. Local number, 67M2.
LOCATION.--Lat 37°56'23", long 75°28'02", Hydrologic Unit 02060010, Wallops Flight Center well B31. Owner: National Aeronautics and Space Administration (formerly U.S. Naval Air Station, Wallops Island).
AQUIFER.--Columbia group sand of Pleistocene age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 8 in (200 mm), depth 60 ft (18.3 m), screen depth unknown.
DATUM.--Altitude of land-surface datum is 35.00 ft (10.67 m) above mean sea level. Measuring point: Top of casing, 1.38 ft (0.42 m) above land-surface datum. Measuring point reported as 6.09 ft (1.86 m) above land-surface datum from 1963 to 1975. All water levels prior to 1975 should be 4.71 ft (1.44 m) lower than shown.
REMARKS.--Records furnished by the National Aeronautics and Space Administration.
PERIOD OF RECORD.--1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 22.53 ft (6.87 m) below land-surface datum, May 9, 1963; lowest measured, 24.70 ft (7.53 m) below land-surface datum, Sept. 9, 1975.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
APR 22	24.52	JUL 12	23.52	SEP 2	24.02
JUN 13	23.62	AUG 1	24.36		

ALBEMARLE COUNTY

380333078264801. Local number, 43N1.
LOCATION.--Lat 38°03'33", long 78°25'48", Hydrologic Unit 02080204, at Key West Subdivision, Charlottesville. Owner: Key West Development Corporation.
AQUIFER.--Lynchburg formation of Precambrian age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in (150 mm), depth 409 ft (124.7 m), cased to 52 ft (15.8 m), open hole 52 to 409 ft (15.8 to 124.7 m).
DATUM.--Altitude of land-surface datum is 335 ft (102 m) above mean sea level. Measuring point: Top of casing, 0.3 ft (0.09 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 28.
PERIOD OF RECORD.--1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.58 ft (3.53 m) below land-surface datum, May 31, 1971; lowest measured, 19.50 ft (5.94 m) below land-surface datum, Oct. 15-18, 1968.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 5	16.25	MAR 9	16.33	AUG 3	19.46
NOV 7	15.28	APR 13	15.70	SEP 6	19.23
DEC 5	16.26	MAY 19	16.76		
JAN 24	17.55	JUN 28	18.22		

APPOMATTOX COUNTY

372133078493701. Local number, 40G1.
LOCATION.--Lat 37°21'33", long 78°49'37", Hydrologic Unit 02080207, in the town of Appomattox. Owner: Town of Appomattox.
AQUIFER.--Metamorphic rock of uncertain age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 8 in (200 mm), depth 288 ft (87.8 m), cased to 40 ft (12.2 m), open hole 40 to 288 ft (12.2 to 87.8 m).
DATUM.--Altitude of land-surface datum is 860 ft (262 m) above mean sea level. Measuring point: Top of casing, 1 ft (0.3 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 12.
PERIOD OF RECORD.--1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 34.78 ft (10.60 m) below land-surface datum, June 13, 1973; lowest, 54.69 ft (16.67 m) below land-surface datum, Feb. 10, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	51.97	51.90	-	51.13	53.40	52.50	51.86	51.40	50.40	51.07	51.40	51.55
10	52.10	51.97	-	51.09	54.69	52.56	50.72	51.15	51.16	-	51.54	51.79
15	51.94	-	-	51.21	54.42	52.43	51.28	50.46	50.68	-	51.43	52.30
20	51.80	-	51.16	53.01	53.15	52.20	51.53	51.52	50.81	-	51.30	52.20
25	52.22	-	50.73	52.54	53.76	52.60	51.18	51.14	50.46	-	51.83	51.52
EOM	52.01	-	51.20	53.32	53.14	52.03	51.03	51.01	51.08	-	52.00	52.17

WTR YR 1977 HIGHEST 50.12 JUN 12, 1977 LOWEST 54.69 FEB 10, 1977

ARLINGTON COUNTY

385346077073701. Local number, 53V1.
LOCATION.--Lat 38°53'34", long 77°07'37", Hydrologic Unit 02070010, at Langston School, 4854 Lee Highway, Arlington. Owner: Arlington County School Board.
AQUIFER.--Brandywine formation of Pleistocene age and Bryn Mawr (?) gravel of Pliocene (?) age, overlying the Sykesville formation of Precambrian age.
WELL CHARACTERISTICS.--Dug unused water well, diameter 24 in (600 mm), depth 35 ft (10.7 m), terracotta casing.
DATUM.--Altitude of land-surface datum is 410 ft (125 m) above mean sea level. Measuring point: Inner flange of manhole at land-surface datum.
PERIOD OF RECORD.--1931 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 17.74 ft (5.41 m) below land-surface datum, Apr. 20, 1935; lowest measured, 34.80 ft (10.61 m) below land-surface datum, Jan. 4, 1932.

ARLINGTON COUNTY--Continued

385346077073701--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 5	25.67	MAR 31	27.61	AUG 3	28.23	SEP 7	28.81
DEC 1	25.87	APR 26	26.94	10	28.15	14	28.90
JAN 3	26.39	MAY 25	26.97	17	28.38	21	29.07
FEB 3	27.16	JUL 7	27.68	24	28.55	28	29.20
28	27.79	25	28.04	31	28.68		

385253077042301. Local number, 54V3.
LOCATION.--Lat 38°52'53", long 77°04'23", Hydrologic Unit 02070010, at Arlington National Cemetery. Owner: U.S. Department of Defense.
AQUIFER.--Terrace gravels of Holocene age and sand of Early Cretaceous age.
WELL CHARACTERISTICS.--Dug unused water well, diameter 48 in (1,200 mm), depth 50 ft (15.2 m).
DATUM.--Altitude of land-surface datum is 205 ft (62 m) above mean sea level. Measuring point: Top of brick and stone casing, 3 ft (0.9 m) above land-surface datum.
PERIOD OF RECORD.--1958 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 40.70 ft (12.40 m) below land-surface datum, Apr. 13, 1976; lowest measured, 44.90 ft (13.69 m) below land-surface datum, Mar. 4, 1966.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 5	41.15	MAR 31	42.20	AUG 3	42.80	SEP 7	42.83
DEC 1	41.02	APR 26	42.27	10	42.82	14	42.80
JAN 3	41.57	MAY 25	42.37	17	42.68	21	42.90
FEB 3	41.71	JUL 7	42.59	24	42.71	28	42.94
28	42.07	25	42.60	31	42.79		

CITY OF COLONIAL HEIGHTS

371644077244601. Local number, 51G1.
LOCATION.--Lat 37°16'44", long 77°24'46", Hydrologic Unit 02080207, at Matoaka Manor, Colonial Heights. Owner: Kenneth Daul.
AQUIFER.--Petersburg granite of Late Paleozoic age.
WELL CHARACTERISTICS.--Drilled water well, diameter 6 in (150 mm), depth 100 ft (30.5 m), cased to 50 ft (15.2 m), open hole 50 to 100 ft (15.2 to 30.5 m).
DATUM.--Altitude of land-surface datum is 57.30 ft (17.47 m) above mean sea level. Measuring point: Top of casing, 1 ft (0.3 m) above land-surface datum.
PERIOD OF RECORD.--1939 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.13 ft (3.39 m) below land-surface datum, Jan. 18, 1960; lowest measured, 19.09 ft (5.82 m) below land-surface datum, Jan. 14, 1942.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 27	15.98	MAR 28	14.12	AUG 10	16.34	SEP 14	16.64
NOV 23	15.68	APR 28	13.78	17	16.50	21	16.70
DEC 21	15.00	MAY 26	14.60	24	16.42	28	16.76
JAN 27	14.07	JUN 29	15.37	31	16.43		
FEB 24	14.07	JUL 26	15.97	SEP 7	16.58		

FAIRFAX COUNTY

385152077211301. Local number, 52U1.
LOCATION.--Lat 38°51'52", long 77°21'13", Hydrologic Unit 02070008, Fair Acres Farm, northwest of Fairfax on U.S. Highway 50. Owner: Atwell Somerville, Jr.
AQUIFER.--Wissahickon formation of Late Precambrian (?) age.
WELL CHARACTERISTICS.--Dug unused water well, diameter 4 ft (1.2 m), depth 24 ft (7.3 m), uncemented stone casing.
DATUM.--Altitude of land-surface datum is 400 ft (122 m) above mean sea level. Measuring point: Top of access pipe, 3.05 ft (0.93 m) above land-surface datum.
PERIOD OF RECORD.--1931 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.17 ft (2.80 m) below land-surface datum, June 25, 1972; lowest measured, 23.58 ft (7.19 m) below land-surface datum, Dec. 26, 1931.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 1	17.34	FEB 28	16.74	JUL 25	18.22	SEP 7	19.01
NOV 1	15.10	MAR 31	15.89	AUG 10	18.56	14	19.17
DEC 1	15.54	APR 26	16.61	17	18.65	21	19.30
JAN 3	15.64	MAY 25	16.10	24	18.75	28	19.42
FEB 3	16.30	JUN 27	17.35	31	18.91		

FAIRFAX COUNTY--Continued

384518077163501. Local number, 52U4.
LOCATION.--Lat 38°45'18", long 77°16'35", Hydrologic Unit 02070010, east of intersection of State Highways 641 and 643, Springfield. Owner: Sydenstricker Church.
AQUIFER.--Granite of undetermined age.
WELL CHARACTERISTICS.--Dug unused water well, diameter 24 in (600 mm), depth 28 ft (8.5 m).
DATUM.--Altitude of land-surface datum is 340 ft (104 m) above mean sea level. Measuring point: Hole in cement platform, 0.67 ft (0.20 m) above land-surface datum.
PERIOD OF RECORD.--1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.54 ft (3.82 m) below land-surface datum, Apr. 30, 1973; lowest measured, 27.57 ft (8.40 m) below land-surface datum, Nov. 30, 1964.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 5	21.42	APR 26	18.98	AUG 24	22.97
DEC 1	21.13	MAY 25	18.96	31	23.31
JAN 3	20.91	JUL 6	20.90	SEP 7	23.53
FEB 3	20.30	AUG 3	22.31	14	23.76
28	20.17	10	22.58	21	23.99
MAR 31	19.64	17	22.81	28	24.23

385638077220101. Local number, 52V-2D.
LOCATION.--Lat 38°56'38", long 77°22'01", Hydrologic Unit 02070008, at U.S. Geological Survey, National Center, Reston. Owner: U.S. Geological Survey.
AQUIFER.--Manassas sandstone of Triassic age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 8 in (200 mm), depth 205 ft (62 m), cased to 35 ft (11 m), open hole 35 to 205 ft (11 to 62 m).
DATUM.--Altitude of land-surface datum is 390 ft (119 m) above mean sea level. Measuring point: Top of casing, 2.0 ft (0.6 m) above land-surface datum.
PERIOD OF RECORD.--October 1976 to September 1977.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.71 ft (2.65 m) below land-surface datum, Apr. 5, 1977; lowest measured, 16.42 ft (5.00 m) below land-surface datum, Sept. 30, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	12.46	FEB 2	12.76	APR 15	9.69	JUL 15	14.33
NOV 15	12.50	15	12.22	MAY 1	11.22	AUG 1	15.02
DEC 1	12.63	MAR 2	12.14	15	11.71	15	15.51
15	11.27	15	10.20	JUN 1	12.80	SEP 1	15.62
JAN 3	12.07	APR 1	10.10	15	13.49	15	16.08
15	12.17	5	8.71	JUL 1	13.75	30	16.42

FLOYD COUNTY

365436080190401. Local number, 28D1.
LOCATION.--Lat 36°54'36", long 80°19'04", Hydrologic Unit 05050001, in the town of Floyd. Owner: Town of Floyd.
AQUIFER.--Lynchburg formation of Precambrian age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 8 in (200 mm), depth 90 ft (27.4 m), cased to 52 ft (15.8 m), open hole 52 to 90 ft (15.8 to 27.4 m).
DATUM.--Altitude of land-surface datum is 2,460 ft (750 m) above mean sea level. Measuring point: Top of casing, 0.8 ft (0.24 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 20.
PERIOD OF RECORD.--1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 12.00 ft (3.66 m) below land-surface datum, May 29, 1973; lowest, 18.85 ft (5.75 m) below land-surface datum, Oct. 29, 1970.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	18.32	16.70	16.73	16.20	16.68	16.80	14.88	14.74	15.31	16.02	16.97	17.74
10	17.53	16.68	16.41	16.29	16.74	16.65	14.56	14.78	15.47	16.22	17.11	17.79
15	17.25	16.70	16.22	16.29	16.80	15.72	14.50	14.90	15.59	16.32	17.23	17.88
20	17.19	16.64	16.11	16.35	16.85	15.55	14.58	15.00	15.69	16.50	17.35	17.94
25	17.02	16.75	16.13	16.40	16.80	15.38	14.57	15.05	15.72	16.62	17.49	18.05
EOM	16.74	16.73	16.17	16.55	16.82	15.36	14.70	15.20	15.89	16.80	17.63	18.17

WTR YR 1977 HIGHEST 14.49 APR 14, 1977 LOWEST 18.32 OCT 5, 1976

CITY OF FRANKLIN

364047076552401. Local number, 55B22.
LOCATION.--Lat 36°40'47", long 76°55'24", Hydrologic Unit 03010202, at 5th Avenue and Middle Street, Franklin. Owner: City of Franklin.
AQUIFER.--Sand of Early Cretaceous age.
WELL CHARACTERISTICS.--Jetted observation water well, diameter 4 in (100 mm), depth 354 ft (107.9 m), screened 335 to 354 ft (102.1 to 107.9 m).
DATUM.--Altitude of land-surface datum is 21.24 ft (6.47 m) above mean sea level. Measuring point: Top edge of manhole at land-surface datum.
REMARKS.--Water level affected by local pumpage.

CITY OF FRANKLIN--Continued

364047076552401--Continued
PERIOD OF RECORD.--1942 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.50 ft (4.42 m) below land-surface datum, June 25, 1942; lowest measured, 178.8 ft (54.50 m) below land-surface datum, Jan. 4, 1969.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 27	175.68	JAN 25	172.76	APR 20	174.15	JUN 30	176.37
DEC 7	175.31	MAR 3	174.89	MAY 26	174.23	AUG 16	177.63

HALIFAX COUNTY

364550078562301. Local number, 39C1.
LOCATION.--Lat 36°45'50", long 78°56'23", Hydrologic Unit 03010105, in the town of Halifax. Owner: Town of Halifax.
AQUIFER.--Granite and gneiss of uncertain age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 8 in (200 mm), depth 303 ft (92.4 m), cased to 52 ft (15.8 m), open hole 52 to 303 ft (15.8 to 92.4 m).
DATUM.--Altitude of land-surface datum is 380 ft (116 m) above mean sea level. Measuring point: Top of casing, 1.20 ft (0.37 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 11.
PERIOD OF RECORD.--1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 36.85 ft (11.23 m) below land-surface datum, Aug. 1, 1973; lowest, 45.09 ft (13.74 m) below land-surface datum, Dec. 30, 1968.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	38.67	38.95	39.14	39.17	39.27	39.24	39.27	39.17	39.27	39.36	-	39.79
10	38.75	38.88	39.20	39.23	39.25	39.22	39.28	39.23	39.30	-	39.68	39.82
15	38.70	38.90	39.04	39.09	39.23	39.17	39.21	39.30	39.30	-	39.70	39.95
20	38.77	38.90	39.02	39.12	39.17	39.27	39.32	39.26	39.28	-	39.70	-
25	38.74	39.03	39.20	39.03	39.20	39.28	39.15	39.24	39.30	-	39.76	-
EOM	38.84	39.14	39.17	39.20	39.30	39.23	39.32	39.26	39.39	-	39.78	-

WTR YR 1977 HIGHEST 38.58 OCT 1, 1976 LOWEST 39.95 SEP 15, 1977

CITY OF HOPEWELL

371801077164201. Local number, 52G1.
LOCATION.--Lat 37°18'01", long 77°16'42", Hydrologic Unit 02080206, in the city of Hopewell. Owner: Virginia American Water Corporation.
AQUIFER.--Sand of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in (150 mm), depth 300 ft (91.4 m), screen depth unknown.
DATUM.--Altitude of land-surface datum is 50.26 ft (15.32 m) above mean sea level. Measuring point: Top of casing, 0.34 ft (0.10 m) above land-surface datum.
PERIOD OF RECORD.--1939 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 20.73 ft (6.32 m) below land-surface datum, Jan. 25, 1954; lowest measured, 56.95 ft (17.36 m) below land-surface datum, Aug. 14, 1943.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	33.73	DEC 5	34.55	FEB 6	33.51	APR 4	34.28	JUN 11	34.51	AUG 13	34.88
10	34.32	12	32.96	13	34.23	16	34.32	18	34.66	20	34.89
17	34.56	19	33.96	20	34.38	23	34.34	25	34.61	27	34.90
24	33.70	26	33.80	27	34.56	30	34.41	JUL 2	34.57	SEP 3	34.96
31	34.35	JAN 2	30.57	MAR 5	34.61	MAY 7	34.48	9	34.66	10	35.00
NOV 7	34.39	9	33.63	12	33.49	14	34.56	16	34.79	17	34.18
14	29.28	16	33.91	19	34.12	21	34.46	23	34.76	24	34.26
21	33.77	23	34.34	26	34.46	28	34.54	30	34.80		
28	34.47	30	29.81	APR 2	34.22	JUN 4	34.64	AUG 6	34.84		

ISLE OF WIGHT COUNTY

364059076544901. Local number, 55B16.
LOCATION.--Lat 36°40'59", long 76°54'49", Hydrologic Unit 03010202, at lumberyard well, near Franklin. Owner: Union Camp Corporation.
AQUIFER.--Sand of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in (150 mm), depth 305 ft (93.0 m), screened 285 to 305 ft (86.9 to 93.0 m).
DATUM.--Altitude of land-surface datum is 25 ft (8 m) above mean sea level. Measuring point: Top edge of recorder shelf, 3.50 ft (1.07 m) above land-surface datum.
REMARKS.--Water level affected by local pumpage.
PERIOD OF RECORD.--1960 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 99.00 ft (30.18 m) below land-surface datum, Dec. 27, 1960; lowest, 185.34 ft (56.80 m) below land-surface datum, Oct. 15, 1970.

364059076544901--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	-	183.14	182.02	177.63	180.73	180.91	181.24	181.27	181.64	183.31	182.62	183.47
10		183.03	181.78	178.58	180.96	181.51	181.71	181.88	181.19	183.74	182.16	181.80
15	-	180.65	181.83	178.81	180.78	180.20	181.44	182.04	183.08	182.99	182.82	182.68
20	183.17	181.97	182.21	179.56	181.14	181.37	181.34	181.85	183.55	182.80	183.07	183.29
25	-	181.76	179.27	180.15	178.37	181.36	181.38	181.48	183.04	182.01	183.31	183.72
EOM	182.91	181.40	175.18	180.80	180.28	180.97	180.15	180.68	183.20	182.57	183.04	184.27

WTR YR 1977 HIGHEST 169.73 DEC 28, 1976 LOWEST 184.27 SEP 30, 1977

364116076545001. Local number, 55B35.
LOCATION.--Lat 36°41'16", long 76°54'50", Hydrologic Unit 03010202, near Franklin. Owner: Union Camp Corporation.
AQUIFER.--Sand of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in (100 mm), depth 628 ft (191.4 m), screened 430 to 435 ft (131.1 to 132.6 m), 475 to 480 ft (144.8 to 146.3 m), 580 to 585 ft (176.8 to 178.3 m), 618 to 623 ft (188.3 to 189.9 m).
DATUM.--Altitude of land-surface datum is 32 ft (10 m) above mean sea level. Measuring point: Top of casing, 2 ft (0.61 m) above land-surface datum.
REMARKS.--Water level affected by local pumpage.
PERIOD OF RECORD.--1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 154.99 ft (47.24 m) below land-surface datum, Aug. 23, 1974; lowest measured, 205.72 ft (62.70 m) below land-surface datum, Oct. 14, 1970.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 27	200.35	JAN 25	196.71	MAY 26	198.55	AUG 16	198.81
DEC 7	199.35	MAR 3	198.04	JUN 30	200.39		

364125076544801. Local number, 55B36.
LOCATION.--Lat 36°41'25", long 76°54'48", Hydrologic Unit 03010202, near Franklin. Owner: Union Camp Corporation.
AQUIFER.--Sand of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation w"... well, diameter 4 in (100 mm), depth 860 ft (262.1 m), screened 720 to 725 ft (219.5 to 221.0 m), 800 to 805 ft (243.8 to 245.4 m), 855 to 860 ft (260.6 to 262.1 m).
DATUM.--Altitude of land-surface datum is 37 ft (11 m) above mean sea level. Measuring point: Top of casing, 2.2 ft (0.67 m) above land-surface datum.
REMARKS.--Water level affected by local pumpage.
PERIOD OF RECORD.--1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 156.65 ft (47.75 m) below land-surface datum, Dec. 27, 1969; lowest measured, 209.87 ft (63.97 m) below land-surface datum, July 26, 1976.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 27	209.20	JAN 25	204.54	APR 30	204.28	JUN 30	207.12
DEC 7	205.64	MAR 3	205.70	MAY 26	204.57	AUG 16	204.52

364425076532701. Local number, 55B45.
LOCATION.--Lat 36°44'25", long 76°53'27", Hydrologic Unit 03010202, near Maynards Crossroads. Owner: R. J. Goodrich.
AQUIFER.--Sand and gravel of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in (100 mm), depth 348 ft (106.1 m), screened 338 to 348 ft (103.0 to 106.1 m).
DATUM.--Altitude of land-surface datum is 37 ft (11 m) above mean sea level. Measuring point: Top edge of recorder shelf, 2.20 ft (0.67 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 33.
PERIOD OF RECORD.--1970 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 130.06 ft (39.64 m) below land-surface datum, Aug. 15, 1974; lowest, 157.77 ft (48.09 m) below land-surface datum, July 22, 1974.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	-	150.25	151.98	150.66	151.68	151.35	152.87	154.78	153.18	-	-	156.05
10	150.47	150.25	151.03	149.69	150.72	150.83	153.55	153.85	152.86	155.30	156.05	154.90
15	150.20	152.01	151.13	151.00	150.83	152.08	153.14	153.82	151.51	155.81	156.05	155.51
20	149.78	151.37	151.12	151.84	150.35	152.04	153.52	153.35	152.70	156.03	155.95	155.00
25	150.39	151.04	152.65	152.08	149.89	151.65	154.31	153.83	153.55	156.20	156.18	156.11
EOM	150.30	151.36	-	151.22	150.38	152.90	154.01	153.55	154.50	-	155.69	156.03

WTR YR 1977 HIGHEST 149.55 JAN 1, 1977 LOWEST 156.30 AUG 26, 27, 1977

JAMES CITY COUNTY

371311076463601. Local number, 56F1.
LOCATION.--Lat 37°13'11", long 76°46'30", Hydrologic Unit 02080206, Colonial Parkway near Jamestown. Owner: U.S. Department of Interior. Colonial National Historical Park.
AQUIFER.--Sand of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in (100 mm), depth 342 ft (104.2 m), screen depth unknown.
DATUM.--Altitude of land-surface datum is 10 ft (3 m) above mean sea level. Measuring point: Top edge of recorder shelf, 3.15 ft (0.96 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 18.
PERIOD OF RECORD.--1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 43.29 ft (13.19 m) below land-surface datum, May 8, 1969; lowest, 66.95 ft (20.41 m) below land-surface datum, Sept. 14, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	-	63.46	63.68	-	-	-	61.86	62.69	63.70	65.56	66.35	66.77
10	64.56	63.70	-	-	-	-	62.25	62.70	63.89	65.50	66.49	66.49
15	54.57	63.75	-	-	-	-	62.20	62.81	63.93	65.88	66.73	66.85
20	64.08	63.56	-	-	-	-	62.49	62.90	64.10	65.91	66.51	66.59
25	64.10	63.89	-	-	-	61.89	62.40	63.10	64.38	66.10	66.63	66.40
EOM	63.69	63.60	-	-	-	61.62	62.80	63.30	65.00	66.08	66.77	66.50

WTR YR 1977 HIGHEST 61.49 MAR 28, 1977 LOWEST 66.95 SEP 14, 1977

KING AND QUEEN COUNTY

374328077012801. Local number, 54K6.
LOCATION.--Lat 37°43'28", long 77°01'28", Hydrologic Unit 02080105, Walkerton. Owner: C. L. Walker.
AQUIFER.--Sand of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in (150 mm), depth 352 ft (107.3 m), screened 312 to 342 ft (95.1 to 104.2 m).
DATUM.--Altitude of land-surface datum is 5 ft (1.5 m) above mean sea level. Measuring point: Top of casing, 1.35 ft (0.41 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observatiun well 64.
PERIOD OF RECORD.--1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 12.64 ft (3.85 m) below land-surface datum, Sept. 1, 1972; lowest, 21.12 ft (6.44 m) below land-surface datum, Feb. 18, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	19.55	19.63	19.50	19.34	20.53	19.88	19.82	-	-	-	-	-
10	19.35	19.25	19.61	19.42	21.46	19.87	19.85	-	-	-	-	-
15	19.56	19.17	19.40	19.57	20.70	-	20.91	-	-	-	-	-
20	19.21	19.50	19.50	19.96	20.58	-	20.70	-	-	-	-	-
25	19.33	20.11	19.34	19.81	20.64	19.72	-	-	-	-	-	-
EOM	19.30	19.30	19.51	20.71	19.76	20.25	-	-	-	-	-	-

WTR YR 1977 HIGHEST 19.10 NOV 29, 1977 LOWEST 21.12 FEB 18, 1977

LOUDOUN COUNTY

391542077423801. Local number, 49Y1.
LOCATION.--Lat 39°15'42", long 77°42'38", Hydrologic Unit 02070008, near Harpers Ferry. Owner: American Telephone and Telegraph Company.
AQUIFER.--Bedrock of Precambrian or Cambrian age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6.5 in (165 mm). Prior to 1974, diameter reported as 8 in (200 mm). Depth 516 ft (157.3 m), cased to 45 ft (13.7 m), open hole 45 to 516 ft (13.7 to 157.3 m).
DATUM.--Altitude of land-surface datum is 1,100 ft (335 m) above mean sea level. Prior to 1974, altitude reported as 940 ft (287 m). Measuring point: Top of casing, 1 ft (0.3 m) above land-surface datum.
REMARKS.--Records furnishel by the Virginia State Water Control Board as observation well 22.
PERIOD OF RECORD.--1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 48.00 ft (14.63 m) below land-surface datum, June 22, 1972; lowest measured, 61.47 ft (18.74 m) below land-surface datum, Nov. 5, 1974.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 19	59.65	APR 26	57.10	JUL 5	60.12	SEP 15	59.84
DEC 1	60.20	MAY 24	59.36	AUG 10	60.25		

LOUISA COUNTY

380217078133701. Local number, 45N1.
LOCATION.--Lat 38°02'17", long 78°13'43", Hydrologic Unit 02080106, near Thelma, 3 mi (5 km) southwest of Boswells Tavern on Tyler property near State Highway 640. Owner: Tyler.
AQUIFER.--Wissahickon formation of Late Precambrian (?) age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in (150 mm), depth 56 ft (17.1 m), length of casing unknown.
DATUM.--Altitude of land-surface datum is 500 ft (152 m) above mean sea level. Measuring point: Top of casing, 1.95 ft (0.59 m) above land-surface datum.

LOUISA COUNTY--Continued

380217078133701--Continued
REMARKS.--Records furnished by the Virginia State Water Control Board.
PERIOD OF RECORD.--1952 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 11.97 ft (3.65 m) below land-surface datum, Apr. 30, 1973; lowest, 34.24 ft (10.44 m) below land-surface datum, Oct. 15, 1966.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	29.20	25.25	24.15	23.03	23.90	24.63	24.19	24.09	26.18	28.52	30.17	31.38
10	28.53	24.72	23.88	23.07	24.03	24.77	24.10	24.42	26.66	28.93	30.37	31.60
15	28.03	24.50	23.51	23.10	24.23	24.70	23.87	24.75	27.03	29.30	30.57	31.80
20	27.66	24.30	23.24	23.29	24.30	24.70	-	25.08	27.40	29.51	30.77	31.97
25	26.72	24.24	23.20	23.33	24.49	24.55	-	25.35	27.78	29.71	30.96	32.15
EOM	25.73	24.29	23.07	23.65	24.60	24.32	24.03	25.83	28.13	29.97	31.19	32.32

WTR YR 1977 HIGHEST 22.78 JAN 18, 1977 LOWEST 32.32 SEP 30, 1977

380131078001001. Local number, 46N1.
LOCATION.--Lat 38°01'31", long 78°00'10", Hydrologic Unit 02080106, in the town of Louisa. Owner: Town of Louisa.
AQUIFER.--Metamorphosed volcanic (?) rocks of unknown age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in (150 mm), depth 132 ft (40.2 m), length of casing unknown.
DATUM.--Altitude of land-surface datum is 455 ft (139 m) above mean sea level. Measuring point: Top of casing, 0.6 ft (0.18 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 56.
PERIOD OF RECORD.--1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 26.27 ft (8.01 m) below land-surface datum, Mar 16, 1973; lowest, 33.40 ft (10.18 m) below land-surface datum, Sept. 29, 30, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	31.14	30.80	30.92	30.97	-	-	-	-	-	-	-	33.06
10	31.20	30.70	30.99	31.02	-	-	-	-	-	-	-	33.13
15	31.09	30.65	30.85	-	-	31.41	-	-	-	-	-	33.22
20	31.07	30.63	30.80	-	-	-	-	-	-	-	32.82	33.28
25	30.95	30.75	30.90	-	-	-	-	-	-	-	32.92	33.32
EOM	30.86	30.85	30.91	-	-	-	-	-	-	-	33.00	33.40

WTR YR 1977 HIGHEST 30.63 NOV 20, 1977 LOWEST 33.40 SEP 29, 30, 1977

MIDDLESEX COUNTY

373809076342501. Local number, 58K1.
LOCATION.--Lat 37°38'09", long 76°34'25", Hydrologic Unit 02080104, in the town of Urbanna. Owner: Town of Urbanna.
AQUIFER.--Sand of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in (150 mm), depth 552 ft (168.2 m), screen depth unknown.
DATUM.--Altitude of land-surface datum is 20 ft (6 m) above mean sea level. Measuring point: Top of casing, 0.8 ft (0.24 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 31.
PERIOD OF RECORD.--1970 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 44.33 ft (13.51 m) below land surface datum, Mar 16, 1970; lowest, 60.17 ft (18.34 m) below land-surface datum, Aug. 31, 1976.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	58.75	58.26	58.65	58.01	59.50	-	59.11	59.29	59.29	59.65	-	-
10	58.90	58.46	58.58	57.85	59.85	-	58.85	59.10	59.28	-	-	-
15	58.90	58.54	58.50	58.19	59.28	-	59.08	59.00	59.43	-	-	-
20	58.70	58.27	58.25	58.75	59.04	-	58.85	59.15	59.50	-	-	-
25	58.75	58.59	58.30	58.80	-	58.99	58.89	59.28	59.33	-	-	-
EOM	58.50	58.32	58.20	59.60	-	58.92	59.25	59.20	59.62	-	-	-

WTR YR 1977 HIGHEST 57.80 JAN 7, 1977 LOWEST 60.00 FEB 8, 1977

MONTGOMERY COUNTY

370812080261901. Local number, 27F2.
LOCATION.--Lat 37°08'12", long 80°26'19", Hydrologic Unit 05050001, in the town of Christiansburg. Owner: Town of Christiansburg.
AQUIFER.--Beekmantown formation of Early Ordovician age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 10 in (250 mm), depth 450 ft (137.2 m), length of casing unknown.
DATUM.--Altitude of land-surface datum is 1,970 ft (600 m) above mean sea level. Measuring point: Top of casing, 1.60 ft (0.49 m) below land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 19.
PERIOD OF RECORD.--1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 2.07 ft (0.63 m) below land-surface datum, Mar. 20, 1975; lowest, 7.30 ft (2.23 m) below land-surface datum, Dec. 5, 1969.

MONTGOMERY COUNTY--Continued

370812080261001--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	5.00	3.43	4.48	4.17	4.88	4.93	5.15	3.98	5.20	5.40	-	5.80
10	5.48	3.70	3.85	4.23	4.90	5.18	5.15	4.50	5.06	-	6.67	5.25
15	5.72	3.63	3.60	4.16	4.81	4.95	5.44	4.90	5.38	-	5.83	-
20	5.77	4.01	3.70	4.65	4.91	5.10	5.78	5.07	5.32	-	5.50	-
25	5.60	4.30	3.72	4.61	4.57	4.96	5.75	5.08	4.74	-	5.40	-
EOM	5.10	4.18	3.93	4.94	4.75	5.14	4.10	4.93	5.01	-	5.92	-

WTR YR 1977 HIGHEST 2.92 OCT 26, 1977 LOWEST 6.70 AUG 9, 1977

NELSON COUNTY

374224078555601. Local number, 30E1.
LOCATION.--Lat 37°42'24", long 78°55'56", Hydrologic Unit 02080203, near Colleen. Owner: P. D. Payne.
AQUIFER.--Lovingston (or Marshall?) formation of Precambrian age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in (150 mm), depth 275 ft (83.8 m), length of casing unknown.
DATUM.--Altitude of land-surface datum is 785 ft (239 m) above mean sea level. Measuring point: Top of casing, 1 ft (0.3 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 6.
PERIOD OF RECORD.--1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.08 ft (8.25 m) below land-surface datum, June 20, 1973; lowest measured, 35.66 ft (10.87 m) below land-surface datum, Mar. 7, 1969.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	31.72	MAR 8	32.06	AUG 2	33.06
NOV 16	31.06	APR 13	32.06	SEP 7	34.52
DEC 16	30.71	MAY 23	32.23		
JAN 25	31.80	JUN 20	33.80		

NEW KENT COUNTY

372428076561501. Local number, 55H1.
LOCATION.--Lat 37°24'28", long 76°56'15", Hydrologic Unit 02080206, Walkers Dam, near Walkers. Owner: City of Newport News.
AQUIFER.--Sand of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 to 4 in (150 to 100 mm), depth 626 ft (190.8 m), screen (slotted casing) 252 to 257 ft (76.8 to 78.3 m), 339 to 344 ft (103.3 to 104.9 m), 439 to 444 ft (133.8 to 135.3 m), 615 to 625 ft (187.5 to 190.5 m).
DATUM.--Altitude of land-surface datum is 10 ft (3 m) above mean sea level. Measuring point: Top of casing, 0.8 ft (0.24 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 17.
PERIOD OF RECORD.--1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 30.24 ft (9.22 m) below land-surface datum, Apr. 10, 1969; lowest, 47.77 ft (14.56 m) below land-surface datum, Aug. 15, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	45.95	45.69	45.86	45.74	45.82	45.88	46.30	46.42	46.70	47.18	-	47.61
10	46.76	45.75	45.85	45.75	45.01	45.98	46.55	46.41	46.77	47.00	47.56	47.57
15	45.81	45.73	45.75	45.60	45.82	45.82	46.52	46.52	46.82	47.02	47.77	47.75
20	45.73	45.63	45.75	45.76	45.82	45.96	46.43	46.58	46.89	47.12	47.50	47.65
25	45.70	45.90	45.72	45.65	45.87	46.25	46.29	46.56	46.91	42.20	47.53	-
EOM	45.56	45.75	45.70	45.85	45.78	46.33	46.51	46.59	47.05	47.25	47.66	-

WTR YR 1977 HIGHEST 45.53 DEC 29, 1976 LOWEST 47.77 AUG 15, 1977

CITY OF NORFOLK

365223076122101. Local number, 61C1.
LOCATION.--Lat 36°52'23", long 76°12'21", Hydrologic Unit 02080108, Moore's Bridge Filter Plant, Norfolk. Owner: City of Norfolk.
AQUIFER.--Sand of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in (150 mm), depth 970 ft (295.7 m), screened 900 to 960 ft (274.3 to 292.6 m).
DATUM.--Altitude of land-surface datum is 10.80 ft (3.29 m) above mean sea level. Measuring point: Top edge of recorder shelf, 4.0 ft (1.22 m) above land-surface datum.
REMARKS.--U.S. Geological Survey test well 1. Water level affected by pumping and recharge operations in nearby wells May 18, 1971, to Nov. 5, 1973.
PERIOD OF RECORD.--1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 13.70 ft (4.18 m) below land-surface datum, Feb. 17, 1968; lowest, 42.28 ft (12.89 m) below land-surface datum, Sept. 30, 1977.

CITY OF NORFOLK--Continued

365223076122101--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	37.84	38.51	38.64	38.61	38.71	39.10	-	39.26	-	41.02	41.73	42.04
10	37.95	38.47	38.66	38.51	38.87	39.01	-	39.56	40.62	41.08	41.81	41.98
15	38.00	38.50	38.62	38.53	38.83	39.09	-	39.85	40.81	41.27	41.94	42.22
20	38.17	38.38	38.53	38.60	38.74	39.11	-	40.03	40.86	41.35	41.78	42.10
25	38.25	38.54	38.65	38.56	38.82	39.03	-	40.16	40.99	41.42	41.92	42.17
EOM	38.23	38.56	38.57	38.68	38.86	-	39.34	-	41.07	41.52	42.01	42.28

WTR YR 1977 HIGHEST 37.70 OCT 2, 1976 LOWEST 42.28 SEP 30, 1977

ORANGE COUNTY

381002078094201. Local number, 45P1.
LOCATION.--Lat 38°10'02", long 78°09'42", Hydrologic Unit 02080106. Gordonsville. Owner: M. L. Johnson.
AQUIFER.--Phyllite of Evington group of Cambrian or Precambrian age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in (150 mm), depth 98 ft (29.9 m), length of casing unknown.
DATUM.--Altitude of land-surface datum is 480 ft (146 m) above mean sea level. Measuring point: Top of casing, 0.3 ft (0.09 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 30.
PERIOD OF RECORD.--1965 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 11.83 ft (3.61 m) below land-surface datum, Apr. 10, 1973; lowest, 35.90 ft (10.94 m) below land-surface datum, Jan. 31, 1966.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	26.07	20.22	21.38	20.91	22.45	22.83	19.50	21.87	25.10	27.72	30.03	31.64
10	24.36	20.78	19.62	21.08	22.78	22.99	-	22.62	25.69	28.20	30.33	31.91
15	23.92	21.32	19.06	21.52	22.96	20.90	18.83	23.29	26.15	28.62	30.63	32.21
20	24.19	21.70	19.27	21.94	22.95	20.13	19.97	23.80	26.48	28.91	30.86	32.34
25	22.00	22.40	19.95	22.00	23.10	19.10	20.38	24.15	26.89	29.23	31.20	32.58
EOM	20.46	22.46	20.39	22.39	23.00	19.42	21.60	24.80	27.38	29.68	31.47	32.78

WTR YR 1977 HIGHEST 18.54 APR 13, 1977 LOWEST 32.78 SEP 30, 1977

PRINCE GEORGE COUNTY

370221077234101. Local number, 51E1.
LOCATION.--Lat 37°02'21", long 77°23'41", Hydrologic Unit 03010201, Carson Elementary School, Carson. Owner: Prince George County School Board.
AQUIFER.--Sediments of Miocene age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in (100 mm), depth 126 ft (38.4 m), screen depth unknown.
DATUM.--Altitude of land-surface datum is 154.18 ft (46.99 m) above mean sea level. Measuring point: Top of iron beam, 2.00 ft (0.61 m) below land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 41.
PERIOD OF RECORD.--1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 47.94 ft (14.61 m) below land-surface datum, Nov. 13, 1975; lowest measured, 59.30 ft (18.08 m) below land-surface datum, Jan. 7, 1971.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	53.70	NOV 19	52.00	DEC 8	52.10	MAR 24	50.12

PRINCE WILLIAM COUNTY

384930077420801. Local number, 49U1.
LOCATION.--Lat 38°49'30", long 77°42'08", Hydrologic Unit 02070010, north of State Highway 55 near Thoroughfare Gap, 3.7 mi (6.0 km) west of Haymarket. Owner: Virginia Department of Highways and Transportation.
AQUIFER.--Shale and sandstone of Newark group of Triassic age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 7 in (175 mm), depth 345 ft (105.2 m), cased to 20 ft (6.1 m), open hole 20 to 345 ft (6.1 to 105.2 m).
DATUM.--Altitude of land-surface datum is 383 ft (117 m) above mean sea level. Measuring point: Top of casing, 2.0 ft (0.61 m) above land-surface datum.
PERIOD OF RECORD.--1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 2.59 ft (0.79 m) below land-surface datum, Mar. 19, 1975; lowest, 10.22 ft (3.12 m) below land-surface datum, Nov. 8, 9, 1968.

PRINCE WILLIAM COUNTY--Continued

384930077420801--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	6.05	4.30	5.57	4.55	6.12	5.21	4.51	5.46	-	-	7.91	-
10	4.22	4.69	4.48	5.51	6.14	5.19	4.08	5.36	-	7.53	-	-
15	4.60	5.01	4.36	5.55	6.05	3.86	4.49	-	-	7.46	8.03	8.38
20	5.00	5.24	4.48	5.77	5.79	4.34	5.05	-	-	7.53	-	8.27
25	4.17	5.61	5.27	5.66	5.62	4.03	5.07	-	-	7.63	-	8.28
EOM	3.98	5.76	4.92	6.01	5.50	3.87	5.59	-	-	7.76	-	8.36

WTR YR 1977 HIGHEST 3.54 OCT 26, 1976 LOWEST 8.38 SEP 15, 1977

385607077381101. Local number, 49V1.
LOCATION.--Lat 38°56'07", long 77°38'11", Hydrologic Unit 02070010, north of Haymarket at intersection of State Highways 600 and 615. Owner: J. H. Hutchison.
AQUIFER.--Shale and sandstone of Newark group of Triassic age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 7 in (175 mm), depth 165 ft (50.3 m), cased to 10 ft (3.0 m), open hole 10 to 165 ft (3.0 to 50.3 m).
DATUM.--Altitude of land-surface datum is 420 ft (128 m) above mean sea level. Measuring point: Top of casing, 1 ft (0.3 m) above land-surface datum.
PERIOD OF RECORD.--1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 7.34 ft (2.24 m) below land-surface datum, Mar. 20, 1975; lowest, 12.28 ft (3.74 m) below land-surface datum, July 12, 13, 1970.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	9.02	8.10	9.35	9.47	10.00	9.49	-	-	10.44	11.09	11.23	11.04
10	7.90	8.59	8.39	9.44	10.05	9.40	-	-	10.41	11.05	11.14	10.98
15	8.09	8.84	8.34	10.78	9.92	8.43	-	10.04	10.61	10.90	11.01	11.12
20	8.60	9.18	8.58	10.13	9.82	-	-	10.21	10.63	10.92	11.05	11.11
25	7.83	9.40	8.96	9.85	9.77	-	-	10.37	10.61	10.92	11.01	11.12
EOM	7.72	9.30	9.29	9.97	9.67	-	-	10.40	10.84	11.14	10.98	11.02

WTR YR 1977 HIGHEST 7.52 OCT 26, 1976 LOWEST 11.26 AUG 12, 1977

383634077151301. Local number, 52S4.
LOCATION.--Lat 38°36'34", long 77°15'13", Hydrologic Unit 02070010, near Woodbridge. Owner: District of Columbia Department of Sanitary Engineering.
AQUIFER.--Sand and gravel of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 10 in (250 mm), depth 186 ft (56.7 m), screened 156 to 176 ft (47.5 to 53.6 m).
DATUM.--Altitude of land-surface datum is 28 ft (9 m) above mean sea level. Measuring point: Top edge of recorder shelf, 3.30 ft (1.01 m) above land-surface datum.
REMARKS.--Featherstone test well 1.
PERIOD OF RECORD.--1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 17.17 ft (5.23 m) below land-surface datum, Apr. 28, 1973; lowest, 20.05 ft (6.11 m) below land-surface datum, June 30, 1969.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	18.17	18.49	18.72	18.77	18.84	18.63	-	18.52	18.53	18.66	18.71	18.83
10	18.11	18.74	18.65	18.67	18.97	18.63	-	18.73	18.74	18.64	18.78	18.52
15	-	18.78	18.82	18.40	18.59	18.50	-	18.60	18.56	18.75	18.74	18.83
20	-	18.53	18.53	18.71	18.67	18.56	18.54	18.65	18.45	18.81	18.79	18.69
25	-	18.76	18.89	18.68	18.70	-	18.56	18.61	18.58	18.69	18.77	18.38
EOM	18.50	18.65	18.49	18.83	18.55	-	18.60	18.37	18.52	18.64	18.82	18.69

WTR YR 1977 HIGHEST 18.00 OCT 4, 1976 LOWEST 18.99 FEB 2, 1977

383634077151302. Local number, 52S5.
LOCATION.--Lat 38°36'34", long 77°15'13", Hydrologic Unit 02070010, near Woodbridge. Owner: District of Columbia Department of Sanitary Engineering.
AQUIFER.--Sand and gravel of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in (150 mm), depth 114 ft (34.7 m), screened 95 to 105 ft (29.0 to 32.0 m).
DATUM.--Altitude of land-surface datum is 28 ft (9 m) above mean sea level. Measuring point: Top of casing, 2.20 ft (0.67 m) above land-surface datum.
REMARKS.--Featherstone test well 2.
PERIOD OF RECORD.--1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.49 ft (5.03 m) below land-surface datum, Feb. 18, 1976; lowest measured, 18.96 ft (5.78 m) below land-surface datum, July 1, 1969.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	17.05	MAR 9	17.46	JUL 5	17.46
DEC 14	17.50	APR 19	17.22	AUG 15	17.64
JAN 27	17.04	MAY 31	17.26		

PULASKI COUNTY

370516080411501. Local number, 25E2.
LOCATION.--Lat 37°05'16", long 80°41'15", Hydrologic Unit 05050001, in the town of Dublin. Owner: Town of Dublin.
AQUIFER.--Conococheague formation of Late Cambrian age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in (100 mm), depth 370 ft (112.9 m), length of casing unknown.
DATUM.--Altitude of land-surface datum is 2,170 ft (661 m) above mean sea level. Measuring point: Top of recorder shelf, 2.23 ft (0.68 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 59.
PERIOD OF RECORD.--1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 60.00 ft (18.29 m) below land-surface datum, Mar. 18, 1973; lowest measured, 81.89 ft (24.96 m) below land-surface datum, Sept. 30, 1974.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	78.93	MAR 7	76.70	JUL 5	79.20
NOV 15	77.40	APR 18	75.40	AUG 8	80.50
DEC 13	78.10	MAY 23	79.63	SEP 13	78.80

CITY OF ROANOKE

371653079552101. Local number, 31G1.
LOCATION.--Lat 37°16'53", long 79°55'21", Hydrologic Unit 03010101, in the city of Roanoke. Owner: Nelson-Roanoke Corporation.
AQUIFER.--Rome formation of Cambrian age. Prior to 1974, reported as Elbrook formation.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in (150 mm), depth 48 ft (14.6 m), length of casing unknown.
DATUM.--Altitude of land-surface datum is 917 ft (280 m) above mean sea level. Measuring point: Top of casing, 0.9 ft (0.27 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 8.
PERIOD OF RECORD.--1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.97 ft (4.56 m) below land-surface datum, June 22, 1972; lowest measured, 23.15 ft (7.06 m) below land-surface datum, May 23, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	18.59	JAN 24	17.91	MAY 23	23.15
NOV 15	17.66	MAR 7	18.02	JUL 5	18.06
DEC 13	17.37	APR 18	17.96	SEP 13	18.04

ROCKBRIDGE COUNTY

373758079271601. Local number, 35K1.
LOCATION.--Lat 37°37'58", long 79°27'16", Hydrologic Unit 02080202, in the town of Glasgow. Owner: Town of Glasgow.
AQUIFER.--Rome formation of Cambrian age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in (150 mm), depth 695 ft (211.8 m), length of casing unknown.
DATUM.--Altitude of land-surface datum is 745 ft (227 m) above mean sea level. Measuring point: Top of casing, 2.0 ft (0.61 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 63.
PERIOD OF RECORD.--1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 15.92 ft (4.85 m) below land-surface datum, July 8, 1972; lowest, 27.31 ft (8.32 m) below land-surface datum, Sept. 29, 30, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	-	22.82	24.30	23.60	24.73	24.93	22.90	23.33	24.70	25.73	26.72	27.21
10	-	23.16	22.87	23.75	24.87	24.91	22.00	23.68	24.97	25.92	26.83	27.00
15	-	23.40	22.53	23.90	25.01	23.52	22.23	23.91	25.14	26.03	26.90	27.14
20	24.47	23.65	22.67	24.09	25.09	23.24	22.56	24.12	25.30	26.18	26.99	27.18
25	23.81	23.90	22.98	24.18	25.10	22.92	22.66	24.33	25.43	26.32	27.11	27.20
EOM	22.62	24.18	23.33	24.43	25.01	22.93	23.14	24.55	25.62	26.55	27.23	27.31

WTR YR 1977 HIGHEST 16.92 DEC 26, 1976 LOWEST 27.31 SEP 29, 30, 1977

ROCKINGHAM COUNTY

382150078424001. Local number, 41Q1.
LOCATION.--Lat 38°21'50", long 78°42'40", Hydrologic Unit 02070005, at Virginia Department of Highways and Transportation garage near McGaheysville. Owner: U.S. Geological Survey.
AQUIFER.--Conococheague limestone of Late Cambrian age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 1/4 in (158 mm), depth 310 ft (94.5 m), cased to 131 ft (39.9 m), open hole 131 to 310 ft (39.9 to 94.5 m).
DATUM.--Altitude of land-surface datum is 1,105 ft (337 m) above mean sea level. Measuring point: Top edge of recorder shelf, 3.50 ft (1.07 m) above land-surface datum.
PERIOD OF RECORD.--1970 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 60.38 ft (18.40 m) below land-surface datum, Dec. 26, 1972; lowest, 86.17 ft (26.26 m) below land-surface datum, Sept. 30, 1977.

ROCKINGHAM COUNTY--Continued

382150078424001--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	77.31	68.16	68.27	68.20	69.85	71.35	68.74	68.65	71.05	75.00	79.58	84.07
10	75.06	68.08	67.96	68.34	70.27	71.15	68.42	68.85	71.69	75.78	80.31	84.49
15	71.73	68.10	67.76	68.53	70.61	70.54	68.25	69.14	72.31	76.56	81.08	85.00
20	70.70	68.10	67.66	68.82	70.98	69.85	68.27	69.46	72.90	77.30	81.81	85.54
25	69.78	68.20	67.80	69.08	71.27	69.40	68.30	69.89	73.60	78.05	82.60	86.00
EOM	68.47	68.28	67.95	69.48	71.34	69.03	68.52	70.49	74.29	78.85	83.38	86.17

WTR YR 1977 HIGHEST 67.57 DEC 20, 1976 LOWEST 86.17 SEP 30, 1977

SOUTHAMPTON COUNTY

364109077230701. Local number, 51B3.

LOCATION.--Lat 36°41'09", long 77°23'07", Hydrologic Unit 03010201, 150 ft (45.7 m) east of the intersection of State Highway 615 and U.S. 58, near Adams Grove. Owner: U.S. Geological Survey.

AQUIFER.--Sand of Early Cretaceous age.

WELL CHARACTERISTICS.--Drill observation water well, diameter 4 in (100 mm), depth 175 ft (53.3 m), screened 165 to 175 ft (50.3 to 53.3 m).

DATUM.--Altitude of land-surface datum is 126 ft (38.4 m) above mean sea level. Measuring point: Top of recorder shelf, 3.20 ft (0.98 m) above land-surface datum.

PERIOD OF RECORD.--1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 54.36 ft (16.57 m) below land-surface datum, Feb. 1, 2, 1976; lowest, 58.30 ft (17.77 m) below land-surface datum, Sept. 4-8, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	57.43	56.44	56.07	55.52	55.21	54.98	54.83	55.39	55.67	-	57.62	58.30
10	57.22	56.37	55.99	55.46	55.27	54.82	54.92	55.36	55.76	-	57.83	58.17
15	57.16	56.37	55.75	55.13	55.22	54.76	55.01	55.59	55.89	56.80	58.03	58.09
20	57.18	56.17	55.62	55.09	55.19	54.77	55.16	55.82	56.07	57.08	58.05	58.09
25	56.71	56.20	55.60	55.10	55.19	54.66	55.15	55.92	56.27	57.32	[illegible]	58.12
EOM	56.53	56.13	55.50	55.16	55.11	54.79	55.35	55.69	56.46	57.59	58.18	58.25

WTR YR 1977 HIGHEST 54.60 MAR 22, 1977 LOWEST 58.30 SEP 4-8, 1977

364706077072301. Local number, 54C1.

LOCATION.--Lat 36°47'06", long 77°07'23", Hydrologic Unit 03010201, in the town of Sebrell. Owner: Norfolk and Western Railway.

AQUIFER.--Sand and gravel of Early Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 10 in (250 mm), depth 344 ft (104.9 m), screen depth unknown.

DATUM.--Altitude of land-surface datum is 58.4 ft (17.8 m) above mean sea level. Measuring point: Top of casing at land-surface datum.

PERIOD OF RECORD.--1907, 1938, 1940 to 1946, 1948 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.00 ft (4.57 m) below land-surface datum, 1907; lowest measured, 91.74 ft (27.96 m) below land-surface datum, Aug. 16, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 27	90.80	MAR 3	90.15	JUL 30	91.02
DEC 7	90.71	APR 20	90.23	AUG 16	91.74
JAN 28	90.29	MAY 26	90.50		

CITY OF SUFFOLK

363928076332901. Local number, 58B13.

LOCATION.--Lat 36°39'28", long 76°33'29", Hydrologic Unit 03010205, 4 mi (6.5 km) south of Suffolk and east of State Highway 642. Owner: Melvin Brinkley.

AQUIFER.--Sand of Pleistocene age.

WELL CHARACTERISTICS.--Dug unused water well, diameter 22 in (550 mm), depth 15 ft (4.6 m).

DATUM.--Altitude of land-surface datum is 40 ft (12 m) above mean sea level. Measuring point: Top of recorder shelf, 1.90 ft (0.58 m) above land-surface datum.

PERIOD OF RECORD.--1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 7.52 ft (2.29 m) below land-surface datum, Feb. 5, 6, 1976; lowest, 12.75 ft (3.89 m) below land-surface datum, Nov. 18, 1976.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	-	12.67	-	11.19	9.72	9.28	8.11	9.21	8.41	9.62	10.81	-
10	-	12.70	12.57	11.02	9.85	7.94	8.21	9.28	8.61	9.90	11.03	-
15	-	12.72	12.32	9.78	9.82	7.80	8.32	9.44	8.59	10.07	-	11.88
20	-	-	11.99	9.52	9.76	8.06	8.65	9.64	8.80	10.26	11.30	11.99
25	-	-	11.70	9.50	9.78	7.72	8.75	9.75	9.08	10.44	-	12.10
EOM	12.63	-	11.40	9.63	9.72	7.98	9.10	9.15	9.35	10.64	11.57	-

WTR YR 1977 HIGHEST 7.72 MAR 23, 24, 25, 1977 LOWEST 12.75 NOV 18, 1976

CITY OF SUFFOLK--Continued

363921076331601. Local number, 58B14.
LOCATION.--Lat 36°39'21", long 76°33'16", Hydrologic Unit 03010205, 4 mi (6.5 km) south of Suffolk and east of State Highway 642. Owner: Melvin Brinkley.
AQUIFER.--Sand of Pleistocene age.
WELL CHARACTERISTICS.--Dug unused water well, diameter 22 in (550 mm), depth 9.30 ft (2.83 m).
DATUM.--Altitude of land-surface datum is 30 ft (9 m) above mean sea level. Measuring point: Inside edge of casing, 2.7 ft (0.8 m) above land-surface datum.
PERIOD OF RECORD.--1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.21 ft (0.37 m) below land-surface datum, May 26, 1977; lowest measured, 5.69 ft (1.73 m) below land-surface datum, Sept. 15, 1976.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 27	4.70	MAR 3	2.04	JUL 6	4.12
DEC 7	3.95	APR 20	2.56	21	4.46
JAN 26	2.29	MAY 26	1.21	AUG 17	5.08

363925076331701. Local number, 58B15.
LOCATION.--Lat 36°39'25", long 76°33'17", Hydrologic Unit 03010205, 4 mi (6.5 km) south of Suffolk off State Highway 642. Owner: Melvin Brinkley.
AQUIFER.--Sand of Pleistocene age.
WELL CHARACTERISTICS.--Dug unused water well, diameter 22 in (550 mm), depth 12 ft (3.7 m).
DATUM.--Altitude of land-surface datum is 35 ft (11 m) above mean sea level. Measuring point: Inner lip of casing, 1.4 ft (0.42 m) above land-surface datum.
PERIOD OF RECORD.--1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.77 ft (0.84 m) below land-surface datum, May 26, 1977; lowest measured, 10.60 ft (3.23 m) below land-surface datum, Oct. 27, 1976, and Aug. 17, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 27	(a)	MAR 3	2.80	JUL 6	5.30
DEC 7	5.64	APR 20	3.82	21	5.84
JAN 27	2.97	MAY 26	2.77	AUG 17	(a)

a Water level below bottom of well, 10.6 ft below land-surface datum.

364301076314801. Local number, 58B114.
LOCATION.--Lat 36°43'30", long 76°31'48", Hydrologic Unit 03010205, at the intersection of Jericho Lane and Jericho Ditch in the Great Dismal Swamp. Owner: U.S. Fish and Wildlife.
AQUIFER.--Sand of Late Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in (100 mm) to 61.8 ft (18.8 m), 2 in (50 mm) from 61.8 ft (18.8 m) to 569.9 ft (173.7 m).
DATUM.--Altitude of land-surface datum is 25 ft (7 m) above mean sea level. Measuring point: Top of casing, 0.7 ft (0.21 m) above land-surface datum.
PERIOD OF RECORD.--1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 76.29 ft (23.25 m) below land-surface datum, May 21, 1976; lowest measured, 81.06 ft (24.71 m) below land-surface datum, Aug. 17, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 27	80.40	MAR 3	80.32	JUL 6	79.70
DEC 7	79.16	APR 20	80.21	AUG 17	81.06
JAN 25	79.07	MAY 26	79.59		

364635076323201. Local number, 58C1.
LOCATION.--Lat 36°46'35", long 76°32'32", Hydrologic Unit 02080208, south of Wilroy. Owner: Nestle Company.
AQUIFER.--Sand of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 20 in (500 mm) from 0 to 455 ft (138.7 m), 12 in (300 mm) from 455 to 884 ft (138.7 to 269.4 m), depth 884 ft (269.4 m), screened 546 to 556 ft (166.4 to 169.5 m), 584 to 604 ft (178.0 to 184.1 m), 640 to 650 ft (195.1 to 198.1 m), 854 to 874 ft (260.3 to 266.4 m).
DATUM.--Altitude of land-surface datum is 20 ft (6 m) above mean sea level. Measuring point: Top of casing, 2.0 ft (0.61 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 4.
PERIOD OF RECORD.--1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 33.38 ft (10.17 m) below land-surface datum, Apr. 1, 1966; lowest, 77.48 ft (23.62 m) below land-surface datum, Oct. 10, 1976.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	77.30	75.34	73.95	72.73	75.71	76.42	76.05	-	-	-	-	-
10	77.48	75.01	-	73.11	76.05	76.73	76.13	-	-	-	-	-
15	77.12	74.76	-	73.78	76.04	76.92	76.00	-	-	-	-	-
20	76.70	74.40	73.16	74.43	76.04	77.05	75.91	-	-	-	-	-
25	76.20	74.32	73.10	75.00	76.28	76.88	75.90	-	-	-	-	-
EOM	75.85	74.09	72.85	75.50	76.31	76.50	76.05	-	-	-	-	-

WTR YR 1977 HIGHEST 72.71 JAN 4, 1977 LOWEST 77.48 OCT 10, 1976

SURRY COUNTY

370408076460101. Local number, 56E1.

LOCATION.--Lat 37°04'08", long 76°40'10", Hydrologic Unit 03010202, on State Highway 617, 3.2 mi (5.1 km) southwest of Bacons Castle. Owner: Buster E. Cox.

AQUIFER.--Sand of Early Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 18 in (450 mm) from 0 to 360 ft (109.7 m), 8 in (200 mm) from 333.5 to 705 ft (101.7 m to 214.9 m), depth 705 ft (214.9 m), screened 401 to 411 ft (122.2 to 125.3 m), 431 to 441 ft (131.4 to 134.4 m), 463 to 473 (141.1 to 144.2 m), 495 to 505 ft (150.9 to 153.9 m), 540 to 555 ft (164.6 to 169.2 m), 700 to 705 ft (213.4 to 214.9 m).

DATUM.--Altitude of land-surface datum is 93 ft (28 m) above mean sea level. Measuring point: Top edge of recorder shelf, 3.6 ft (1.10 m) above land-surface datum.

PERIOD OF RECORD.--1942, 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 73.52 ft (22.41 m) below land-surface datum, Mar. 10, 1942; lowest, 139.13 ft (42.41 m) below land-surface datum, Sept. 30, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	136.53	136.65	136.88	136.85	136.86	136.76	136.72	136.94	137.26	137.85	138.48	138.92
10	136.52	136.65	136.86	136.69	136.93	136.79	136.89	136.95	137.34	137.94	138.58	138.86
15	136.57	136.71	136.80	136.68	136.87	136.74	136.92	137.09	-	137.99	138.68	139.05
20	136.67	136.66	136.75	136.72	136.78	136.77	137.00	137.15	-	138.11	138.66	139.03
25	136.59	136.77	136.85	136.68	136.77	136.74	136.85	137.15	-	138.23	138.72	139.09
EOM	136.54	136.83	136.78	136.77	136.78	136.78	137.05	137.23	137.72	138.38	138.86	139.13

WTR YR 1977 HIGHEST 136.33 OCT 9, 1976 LOWEST 139.13 SEP 30, 1977

WESTMORELAND COUNTY

381010077021901. Local number, 54P3.

LOCATION.--Lat 38°10'10", long 77°02'19", Hydrologic Unit 02080104, west of State Highway 637 near Oak Grove. Owner: U.S. Geological Survey.

AQUIFER.--Sand of Early Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in (100 mm), depth 1,349 ft (411.2 m), screened from 1,338 to 1,343 ft (407.8 to 409.3 m).

DATUM.--Altitude of land-surface datum is 185 ft (56 m) above mean sea level. Measuring point: Top of casing, 2.97 ft (0.91 m) above land-surface datum. Measuring point changed from 2.92 ft (0.89 m) above land-surface datum May 24, 1977.

PERIOD OF RECORD.--1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 167.05 ft (50.92 m) below land-surface datum, June 23, 1976; lowest measured, 169.00 ft (51.51 m) below land-surface datum, Aug. 26, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	167.35	APR 19	168.06	JUN 8	168.36	JUL 28	168.77
DEC 14	167.18	MAY 24	168.30	24	168.60	AUG 15	168.93
JAN 27	167.74	25	167.47	28	168.57	26	169.00
MAR 9	167.63	31	168.17	JUL 5	168.6[illegible]	SEP 28	168.92

381110076550501. Local number, 55P5.

LOCATION.--Lat 38°11'10", long 76°55'05", Hydrologic Unit 02070011, behind craft shop at George Washington birthplace. Owner: National Park Service.

AQUIFER.--Sand of Early Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in (150 mm), depth 471 ft (143.6 m), screened 451 to 466 ft (137.5 to 142.0 m).

DATUM.--Altitude of land-surface datum is 24 ft (7 m) above mean sea level. Measuring point: Top of recorder shelf, 3.0 ft (0.91 m) above land-surface datum.

PERIOD OF RECORD.--1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 25.36 ft (7.73 m) below land-surface datum, Dec. 1, 1974; lowest, 31.14 ft (9.49 m) below land-surface datum, Sept. 4, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	[illegible]	29.20	29.38	29.06	29.41	29.14	28.70	28.90	29.42	30.06	30.63	30.91
10	[illegible]	29.27	29.23	28.73	29.60	29.20	29.10	29.17	29.63	30.11	30.70	30.75
15	29.26	29.33	29.26	28.93	29.30	29.02	28.98	29.10	29.66	30.23	30.86	31.07
20	29.11	29.15	29.03	29.22	29.15	29.04	29.08	29.30	29.60	30.35	30.73	30.82
25	29.28	29.41	29.37	29.05	29.13	29.33	28.80	29.45	29.78	30.25	30.92	30.60
EOM	29.05	29.27	29.18	29.50	29.14	28.95	28.94	29.05	29.86	30.32	31.13	30.88

WTR YR 1977 HIGHEST 28.14 OCT 3, 1976 LOWEST 31.14 SEP 4, 1977

380538076490801. Local number, 56N1.

LOCATION.--Lat 38°05'38", long 76°49'08", Hydrologic Unit 02080104, at Washington and Lee School near Montross. Owner: Westmoreland County Public Schools.

AQUIFER.--Sand of Early Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in (100 mm) from 0 to 189 ft (0 to 57.6 m), 2 in (50 mm) from 189 to 641 ft (57.6 to 195.4 m), depth 641 ft (195.4 m), screened 608 to 628 ft (185.3 to 191.4 m).

DATUM.--Altitude of land-surface datum is 149 ft (45 m) above mean sea level. Measuring point: Top of casing, 1.2 ft (0.37 m) above land-surface datum. Top of casing previously reported as 1 ft (0.3 m).

REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 16.

WESTMORELAND COUNTY--Continued

380538076490801--Continued
PERIOD OF RECORD.--1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 133.47 ft (40.68 m) below land-surface datum, Aug. 28, 1967; lowest, 152.97 ft (46.63 m) below land-surface datum, Dec. 15, 1975.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	150.09	149.78	149.62	149.49	150.31	151.14	150.86	151.12	-	-	-	-
10	149.96	149.63	149.62	149.22	150.63	151.26	151.18	151.05	-	-	-	-
15	149.91	149.60	149.63	149.45	150.60	150.99	151.32	151.12	-	-	-	-
20	149.74	149.82	149.54	149.58	150.72	-	151.59	151.20	-	-	-	-
25	149.73	149.79	149.20	149.75	150.93	151.05	151.50	-	-	-	-	-
EOM	149.86	149.46	149.42	149.82	150.86	151.92	151.58	-	-	-	-	-

WTR YR 1977 HIGHEST 149.20 DEC 25, 1976 LOWEST 151.73 APR 23, 1977

WYTHE COUNTY

365557080535801. Local number, 23D1.
LOCATION.--Lat 36°55'57", long 80°53'58", Hydrologic Unit 05050001, at Wytheville National Fish Hatchery, on State Highway 629, 1.0 mi (1.6 km) southwest of Grahams Forge. Owner: U.S. Fish and Wildlife Service.
AQUIFER.--Rome formation of Lower Cambrian age.
WELL CHARACTERISTICS.--Drilled used water well, diameter 8 in (200 mm), depth 400 ft (122 m), cased to 116 ft (35.4 m), open hole 116 to 400 ft (35.41 to 122 m).
DATUM.--Altitude of land-surface datum is 1,975 ft (602 m) above mean sea level. Measuring point: Top of half-inch pipe at land-surface datum.
REMARKS.--Water-quality records are published in the following quality of ground-water table.
PERIOD OF RECORD.--September 1976 to September 1977.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.20 ft (0.37 m) below land-surface datum, Apr. 1, 1977; lowest measured, 5.47 ft (1.67 m) below land-surface datum, May 6, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, SEPTEMBER 1976 TO SEPTEMBER 1977

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
SEP 7, 1976	1.40	MAR 3	2.47	MAY 6	5.47
JAN 31, 1977	1.33	APR 1	1.20	JUL 26	2.47

QUALITY OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

LOCAL IDENT-I-FIER USGS	LOCAL IDENT-I-FIER VA.SWCB	STATION NUMBER	DATE OF SAMPLE	TOTAL DEPTH OF WELL (FT)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)
		ARLINGTON COUNTY								
54V-3H	106-2	385253077042301	77-06-14	49.5	280	--	16.0	5	58	50
		AUGUSTA COUNTY								
39NS1		380311078555201	77-03-11	--	175	7.8	13.0	0	94	17
39NS2		380316078554001	77-03-11	--	170	8.3	13.0	0	91	16
39NS3		380533078531001	77-03-11	--	418	8.0	13.0	0	220	40
		CHESTERFIELD COUNTY								
51H6	120-138	372516077253101	76-11-30	205	158	5.6	15.0	50	31	1
		FAIRFAX COUNTY								
51V10C	129-104	385812077234701	77-03-11	400	--	--	--	0	130	0
51U-1D		384810077284501	77-04-18	320	600	--	14.5	0	220	2
50U-3C		385048077320001	77-04-20	--	585	--	32.0	0	250	76
51V-4J		385321077234001	76-12-21	309	180	--	14.0	0	69	0
51V-5J		385311077234501	77-01-13	289	150	--	--	5	65	0
52V-1D		385639077220101	76-11-05	165	160	--	12.9	0	47	0
51U-3D		384918077281201	77-04-17	290	437	--	14.8	0	210	19
51U-2D		384935077293301	77-04-17	200	--	--	14.0	5	300	76
51U-5A		385157077275301	77-04-20	400	450	--	15.0	0	170	0
		JAMES CITY COUNTY								
56F11	147-6	371228076464301	77-08-02	267	585	7.1	20.0	0	5	0
56F12	147-5	371233076464001	77-08-02	340	582	--	--	--	--	--
56F13	147-33	371325076470701	77-08-02	343	615	6.7	19.0	0	2	0
56F14		371316076472701	77-08-02	370	680	6.9	19.0	0	2	0
56F15		371314076460001	77-08-02	337	768	7.3	20.0	0	3	0
56F18	147-112	371405076463001	77-08-19	409	530	7.2	19.0	5	3	0
56F19	147-120	371447076463501	77-08-19	390	845	7.6	17.0	0	7	0
56F21	147-142	371331076455801	77-08-19	335	595	7.6	17.0	0	5	0
56F22	147-30	371410076453101	77-08-11	204	510	5.6	17.0	8	19	0
56F23	147-28	371411076450601	77-08-11	246	690	6.7	18.0	5	31	0
56G15	147-42	372148076461101	77-08-11	280	280	5.6	19.0	5	80	0
56G16	147-57	371834076453601	77-08-19	277	320	6.3	14.0	5	37	0
56G3	147-54	371909076471101	77-08-19	282	265	6.9	15.0	3	120	18
56G4	147-109	371925076452901	77-08-19	280	240	6.7	15.0	5	108	6
56G5	147-108	371910076454301	77-08-19	276	298	6.7	16.0	0	40	0
56G6	147-86	371905076471201	77-08-19	282	295	5.9	16.5	0	53	0
56G7	147-140	372217076485001	77-08-19	270	205	6.7	15.5	5	89	13
56H16	147-141	372251076482401	77-08-19	270	245	6.7	17.0	5	100	0
57F10	147-90	371406076445701	77-08-11	206	655	6.3	18.0	5	32	0
57F7	147-110	371343076400801	77-08-02	470	1190	6.7	20.0	0	32	0
57F8	147-117	371406076384301	77-08-02	510	1790	6.0	20.0	0	13	0
57F9		371424076391101	77-08-11	453	1600	7.0	20.0	5	17	0
57G26	147-69	371543076443402	77-08-11	280	745	6.2	18.0	5	43	0
57G27	147-68	371543076443401	77-08-11	85	220	5.1	17.0	0	120	3
57G29	147-44	371850076444601	77-08-19	288	310	6.5	19.0	3	76	0
		LOUDOUN COUNTY								
51V8A		385835077281901	77-03-10	405	--	--	--	0	340	110
51W-1H		390002077254601	77-06-13	--	350	--	15.5	5	170	0
51W-2F		390333077223001	77-06-13	--	195	--	15.0	5	81	13
		NORTHUMBERLAND COUNTY								
60L16		375045076160801	77-01-27	714	695	8.9	6.0	0	18	0
		PRINCE WILLIAM COUNTY								
51U-4H		384520077263001	77-04-19	250	1170	--	17.8	0	530	390
51T-1A		384403077283801	77-04-19	385	340	--	15.0	0	140	0
		RICHMOND COUNTY								
57L8		374814076381401	77-01-28	235	300	8.5	7.0	0	56	0

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

LOCAL IDENT-I-FIER		DATE OF SAMPLE	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)
USGS	VA.SWCB										
					ARLINGTON COUNTY						
54V-3H	106-2	77-06-14	16	4.5	23	4.7	10	--	18	36	.0
					AUGUSTA COUNTY						
39NS1		77-03-11	21	10	.4	2.0	93	0	9.3	1.0	.1
39NS2		77-03-11	20	10	.8	1.9	91	0	9.3	2.2	.1
39NS3		77-03-11	52	22	3.5	2.4	220	0	14	8.0	.3
					CHESTERFIELD COUNTY						
51H6	120-138	76-11-30	6.0	3.9	19	5.4	37	0	5.6	24	.2
					FAIRFAX COUNTY						
51V10C	129-134	77-03-11	40	8.0	12	.8	167	--	4.2	5.4	.1
51U-1D		77-04-18	58	19	37	.9	270	--	41	14	.2
50U-3C		77-04-20	82	12	15	1.7	220	--	33	25	.0
51V-4J		76-12-21	23	2.7	11	1.3	98	--	2.2	1.1	.1
51V-5J		77-01-13	22	2.4	9.4	1.0	96	--	2.0	1.0	.0
52V-1D		76-11-05	4.2	7.6	8.3	.6	70	--	.8	1.5	.2
51U-3D		77-04-17	50	20	12	2.0	230	--	21	12	.1
51U-2D		77-04-17	59	36	16	1.7	270	--	21	57	.2
51U-5A		77-04-20	51	10	21	.9	210	--	19	9.2	.5
					JAMES CITY COUNTY						
56F11	147-6	77-08-02	1.4	.3	120	5.6	310	0	6.2	3.5	2.7
56F12	147-5	77-08-02	--	--	--	--	--	--	--	--	--
56F13	147-33	77-08-02	.8	.1	140	5.2	340	0	7.1	13	3.2
56F14		77-08-02	.8	.1	150	5.6	330	0	9.5	22	3.2
56F15		77-08-02	1.0	.2	160	7.5	360	0	10	40	3.1
56F18	147-112	77-08-19	.7	.2	140	4.5	380	0	9.0	28	4.2
56F19	147-120	77-08-19	1.9	.6	190	8.2	400	0	11	68	2.5
56F21	147-142	77-08-19	1.6	.4	140	6.0	360	0	5.8	9.9	3.5
56F22	147-30	77-08-11	4.5	1.9	130	9.0	270	0	2.6	46	1.5
56F23	147-28	77-08-11	6.9	3.3	140	12	280	0	6.1	76	.9
56G15	147-42	77-08-11	26	3.6	23	7.0	150	0	5.3	3.2	.4
56G16	147-57	77-08-19	18	2.8	46	9.5	160	0	5.9	4.3	.6
56G3	147-56	77-08-19	48	1.1	2.4	1.4	130	0	10	2.6	.0
56G4	147-109	77-08-19	39	1.8	3.6	2.2	120	0	10	2.8	.1
56G5	147-108	77-08-19	16	3.5	41	6.8	140	0	8.0	3.4	.6
56G6	147-86	77-08-19	17	2.6	37	7.4	150	0	6.7	4.1	.5
56G7	147-140	77-08-19	34	1.1	3.3	1.5	93	0	9.8	3.5	.1
56H16	147-141	77-08-19	38	2.4	12	5.0	160	0	9.0	3.9	.2
57F10	147-90	77-08-11	7.3	3.4	130	12	260	0	5.2	68	1.1
57F7	147-113	77-08-02	2.8	6.0	200	7.5	420	0	10	180	2.3
57F8	147-117	77-08-02	3.3	1.1	300	11	420	0	33	310	2.2
57F9		77-08-11	4.2	1.5	360	12	430	0	31	280	2.6
57G26	147-63	77-08-11	10	4.3	140	13	270	0	13	78	1.0
57G27	147-69	77-08-11	46	.7	4.3	2.0	140	0	2.2	5.2	.1
57G29	147-44	77-08-19	25	3.2	32	6.8	160	0	9.8	6.8	.4
					LOUDOUN COUNTY						
51V8A		77-03-10	80	35	28	.8	287	--	140	8.6	.2
51W-1H		77-06-13	41	17	16	.7	220	--	2.4	10	.3
51W-2F		77-06-13	27	3.2	6.8	.6	42	--	1.1	9.0	.0
					NORTHUMBERLAND COUNTY						
60L16		77-01-27	5.0	1.4	160	5.2	416	0	12	9.8	2.0
					PRINCE WILLIAM COUNTY						
51U-4H		77-04-19	180	19	72	3.5	170	--	480	8.7	.2
51T-1A		77-04-19	43	8.2	13	.8	190	--	7.1	5.3	.1
					RICHMOND COUNTY						
57L8		77-01-28	13	5.6	42	7.5	180	0	7.2	1.5	.4

QUALITY OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

LOCAL IDENT-I-FIER USGS	LOCAL IDENT-I-FIER VA.SWCB	DATE OF SAMPLE	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)
		ARLINGTON COUNTY						
54V-3H	106-2	77-06-16	17	165	159	9.0	40	.00
		AUGUSTA COUNTY						
39N51		77-03-11	9.0	95	102	.44	1.9	.00
39N52		77-03-11	9.9	88	101	.37	1.6	.00
39N53		77-03-11	9.0	205	232	2.7	12	.00
		CHESTERFIELD COUNTY						
51H8	120-138	76-11-30	20	104	100	.01	.04	.00
		FAIRFAX COUNTY						
51V10C	129-104	77-03-11	41	197	190	.81	3.6	.00
51U-1D		77-06-16	33	356	356	.29	1.3	.00
50U-3C		77-06-20	26	392	343	14	62	.01
51V-4J		76-12-21	47	127	137	.06	.30	.00
51V-5J		77-01-13	45	126	130	.01	.04	.00
52V-1D		76-11-04	36	47	47	.06	.30	.00
51U-3D		77-06-17	32	276	270	1.7	7.5	.06
51U-2D		77-06-17	46	418	371	.21	.93	.00
51U-5A		77-06-29	26	263	262	.64	2.8	.00
		JAMES CITY COUNTY						
56F11	147-6	77-08-02	25	313	319	.14	.62	.00
56F12	147-5	77-08-02	--	--	--	--	--	--
56F13	147-33	77-08-02	23	333	362	.04	.18	.08
56F14		77-08-02	26	371	381	.00	.00	.13
56F15		77-08-02	27	427	420	.14	.62	.00
56F18	147-112	77-08-10	36	362	373	.01	.04	.00
56F19	147-120	77-08-10	19	495	491	.01	.04	.06
56F21	147-142	77-08-10	20	358	356	.00	.00	.02
56F22	147-30	77-08-11	23	365	353	.00	.00	.25
56F23	147-28	77-08-11	35	395	400	.29	1.3	.03
56G15	147-42	77-08-11	55	196	190	.10	.44	.06
56G16	147-57	77-08-10	44	211	202	.00	.00	.01
56G3	147-56	77-08-10	13	150	143	.20	.89	.00
56G4	147-109	77-08-10	16	132	135	.02	.09	.00
56G5	147-108	77-08-10	44	197	206	.36	1.6	.02
56G6	147-86	77-08-10	35	187	185	.12	.53	.00
56G7	147-140	77-08-10	17	118	116	.00	.00	.00
56H16	147-141	77-08-10	53	195	193	.01	.04	.00
57F10	147-93	77-08-11	35	383	382	.33	1.5	.00
57F7	147-110	77-08-02	18	685	723	.26	1.2	.00
57F8	147-117	77-08-02	18	944	978	.03	.13	.30
57F9		77-08-11	17	802	822	.02	.09	.33
57G26	147-69	77-08-11	37	427	431	.21	.93	.16
57G27	147-68	77-08-11	16	151	146	.17	.75	.00
57G29	147-44	77-08-10	33	196	195	.21	.93	.00
		LOUDOUN COUNTY						
51V8A		77-03-10	24	465	461	.69	3.1	.00
51W-1H		77-06-13	26	206	220	.03	.13	.00
51W-2P		77-06-13	22	142	124	4.3	19	.00
		NORTHUMBERLAND COUNTY						
60L16		77-01-27	13	472	435	.01	.04	.20
		PRINCE WILLIAM COUNTY						
51U-4H		77-04-19	26	936	876	.02	.09	.00
51T-1A		77-06-19	55	221	220	.62	2.7	.01
		RICHMOND COUNTY						
57L8		77-01-28	33	216	201	.33	1.5	.00

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

LOCAL IDENT-I-FIER USGS	LOCAL IDENT-I-FIER VA.SWCB	DATE OF SAMPLE	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)
		ARLINGTON COUNTY				
54V-3H	106-2	77-04-14	9.0	.00	.00	10
		AUGUSTA COUNTY				
39NS1		77-03-11	.44	.00	.00	10
39NS2		77-03-11	.37	.00	.00	70
39NS3		77-03-11	2.7	.00	.00	10
		CHESTERFIELD COUNTY				
51M6	120-138	76-11-30	.01	.00	.00	1700
		FAIRFAX COUNTY				
51V20C	129-104	77-03-11	.41	.08	.25	30
51U-1D		77-04-19	.09	.04	.12	30
50U-3C		77-04-20	1.4	.00	.00	10
51V-4J		76-12-21	.06	.13	.40	10
51V-5J		77-01-13	.01	.13	.40	10
52V-1B		76-11-05	.06	.24	.74	0
51U-3D		77-04-17	1.7	.00	.00	10
51U-2D		77-04-17	.21	.00	.00	240
51U-5A		77-04-20	.04	.00	.00	30
		JAMES CITY COUNTY				
56F11	147-6	77-08-02	.16	.36	1.1	30
56F12	147-5	77-08-02	--	--	--	--
56F13	147-33	77-08-02	.12	.42	1.3	20
56F14		77-08-02	.13	.45	1.4	70
56F15		77-08-02	.14	.41	1.3	150
56F18	147-112	77-08-10	.01	.68	2.1	50
56F19	147-123	77-08-10	.04	.20	.61	60
56F21	147-142	77-08-10	.02	.42	1.3	100
56F22	147-30	77-08-11	.36	.02	.06	40
56F23	147-28	77-08-11	.29	.00	.00	20
56G15	147-42	77-08-11	.14	.00	.00	30
56G16	147-97	77-08-10	.01	.01	.03	50
56G3	147-54	77-08-10	.20	.00	.00	0
56G4	147-109	77-08-10	.02	.00	.00	10
56G5	147-108	77-08-10	.38	.01	.03	40
56G6	147-86	77-08-10	.12	.01	.03	10
56G7	147-140	77-08-10	.00	.00	.05	10
56H16	147-141	77-08-10	.01	.01	.03	150
57F10	147-90	77-08-11	.33	.00	.00	90
57F7	147-110	77-08-02	.26	.21	.64	20
57F8	147-117	77-08-02	.33	.21	.64	60
57F9		77-08-11	.36	.17	.52	40
57G26	147-69	77-08-11	.37	.00	.00	30
57G27	147-68	77-08-11	.17	.02	.06	10
57G29	147-44	77-08-10	.21	.01	.03	10
		LOUDOUN COUNTY				
51V8A		77-03-10	.40	.00	.00	40
51W-1H		77-04-13	.03	.01	.03	10
51W-2P		77-04-13	4.3	.07	.21	50
		NORTHUMBERLAND COUNTY				
60L16		77-01-27	.21	.21	.64	170
		PRINCE WILLIAM COUNTY				
51U-4H		77-04-19	.02	.01	.03	310
51T-1A		77-04-19	.43	.17	.52	10
		RICHMOND COUNTY				
57L8		77-01-28	.33	.02	.06	210

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

LOCAL IDENT- I- FIER		STATION NUMBER	DATE OF SAMPLE	TOTAL DEPTH OF WELL (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)
USGS	VA.SWCB									
		WESTMORELAND COUNTY								
55P8		381359076574001	77-01-20	826	300	8.2	2.0	0	5	0
55Q5		381617076591401	77-01-20	255	285	9.0	21.0	0	4	0
56N7	196-104	370516076473001	77-01-20	700	595	8.7	18.0	0	10	0
		TOWN OF SALEM								
30G11		371603080060401	77-03-11	--	260	6.2	13.0	0	160	15
30G1		371725080061601	77-03-11	500	220	5.5	13.0	0	120	27
		CITY OF SUFFOLK								
58B232		363950076333901	76-10-14	--	1630	--	19.0	5	15	0
59D10	161-141	365411076260801	76-11-05	825	420	8.2	18.0	2	200	29
59D12	161-145	365411076260201	76-11-05	92	430	9.0	16.0	0	180	22
59D13	161-147	365408076260401	76-11-05	81	430	8.1	16.0	0	170	27
59D14	161-148	365405076260001	76-11-05	83	410	8.9	16.0	0	180	30
59D8	161-142	365410076260501	76-11-05	90	440	7.8	18.0	2	190	32
		CITY OF WAYNESBORO								
39M1	107-4	380512070523001	77-03-11	505	360	7.0	13.0	0	200	41

LOCAL IDENT- I- FIER		DATE OF SAMPLE	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)
USGS	VA.SWCB										
		WESTMORELAND COUNTY									
55P8		77-01-20	1.0	.5	68	2.6	177	0	12	1.6	1.2
55Q5		77-01-20	1.2	.3	66	2.0	153	0	12	1.5	1.6
56N7	196-104	77-01-20	2.5	.9	140	4.2	343	0	9.5	2.3	2.6
		TOWN OF SALEM									
30G11		77-03-11	29	16	1.3	3.2	150	0	5.8	2.2	.1
30G1		77-03-11	27	12	1.4	1.1	110	0	22	1.5	.4
		CITY OF SUFFOLK									
58B232		76-10-14	2.4	2.1	360	20	944	--	26	33	3.8
59D10	161-141	76-11-05	76	3.5	12	2.2	208	0	32	14	.1
59D12	161-145	76-11-05	66	2.5	12	6.8	147	0	25	22	.1
59D13	161-147	76-11-05	64	2.6	16	1.8	175	0	30	23	.1
59D14	161-148	76-11-05	64	6.3	12	2.1	160	0	25	15	.1
59D8	161-142	76-11-05	70	3.8	15	2.7	193	0	30	23	.1
		CITY OF WAYNESBORO									
39M1	107-4	77-03-11	41	23	2.0	1.6	190	0	33	7.6	.0

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

LOCAL IDENT-I-FIER USGS	VA.SWCB	DATE OF SAMPLE	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)
			WESTMORELAND COUNTY					
55P8		77-01-28	37	241	220	.00	.00	.03
55Q5		77-01-28	41	232	214	.03	.10	.00
56N7	196-104	77-01-28	15	404	369	.12	.50	.00
			TOWN OF SALEM					
30GS1		77-03-11	15	136	147	.05	.20	.00
30G1		77-03-11	9.2	128	129	.00	.00	.00
			CITY OF SUFFOLK					
58B232		76-10-19	11	975	938	.33	1.5	.53
59D10	161-141	76-11-05	12	259	252	.00	.00	.00
59D12	161-145	76-11-05	12	249	239	.11	.50	.00
59D13	161-147	76-11-05	11	243	235	.01	.00	.00
59D14	161-148	76-11-05	11	216	229	1.6	7.1	.00
59D8	161-142	76-11-05	12	258	254	.40	1.8	.00
			CITY OF WAYNESBORO					
39N1	107-4	77-03-11	7.9	198	210	.12	.50	.00

LOCAL IDENT-I-FIER USGS	VA.SWCB	DATE OF SAMPLE	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)
			WESTMORELAND COUNTY			
55P8		77-01-28	.03	2.9	8.9	70
55Q5		77-01-28	.03	4.3	13	50
56N7	196-104	77-01-28	.12	.49	1.5	20
			TOWN OF SALEM			
30GS1		77-03-11	.05	.02	.06	20
30G1		77-03-11	.00	.00	.00	0
			CITY OF SUFFOLK			
58B232		76-10-19	.86	.08	.25	10
59D10	161-141	76-11-05	.00	.00	.00	10
59D12	161-145	76-11-05	.11	.00	.00	0
59D13	161-147	76-11-05	.01	.00	.00	0
59D14	161-148	76-11-05	1.6	.00	.00	10
59D8	161-142	76-11-05	.40	.00	.00	0
			CITY OF WAYNESBORO			
39N1	107-4	77-03-11	.12	.00	.00	10

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